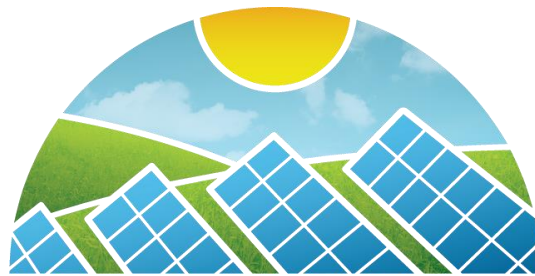


Application for Certificate of Public Convenience and Necessity

BADGER HOLLOW SOLAR FARM

Docket # 9697-CE-100

Iowa County, WI



BADGER HOLLOW
S O L A R F A R M

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TERMS/ACRONYMS	DEFINITIONS
AC	Alternating Current
AFR	Application Filing Requirements
APA	Asset Purchase Agreement
ASNRI	Area of Special Natural Resource Interest
ATC	American Transmission Company
AWG	American Wire Gauge
BING	Bing is a web search engine owned and operated by Microsoft. The service has its origins in Microsoft's previous search engines: MSN Search, Windows Live Search and later Live Search.
BGS	Below Ground Surface
BMP	Best Management Practice
CA	Certificates of Authority
CPCN	Certificate of Public Convenience and Necessity
CGP	Construction General Permit
CL	Lean Clay
CPCN	Certificate of Public Convenience and Necessity
CPR	Clean Power Research
CRP	Conservation Reserve Program
DATCP	Department of Agriculture, Trade and Consumer Protection
dBA	A-weighted decibels
DC	Direct Current
DEM	Digital Elevation Model
DNR	Department of Natural Resources
DOT	Department of Transportation
EMF	Electromagnetic Field
EMI	ElectroMagnetic Interference
ER	Endangered Resource
ERR	Endangered Resource Review
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FR	Federal Regulation (Code of Federal Regulations reference)
GIS	Geographic Information System
HDD	Horizontal Direction Drilling
HSG	Hydrologic Soil Group
Hz	Hertz
IBA	Pecatonica River Prairie Important Bird Area
IPaC	Information for Planning and Consultation
ISO	International Standards Organization
JDA	Joint Development Agreement
kCMIL	Thousand Circular Mils (Wire Gauge Measurement)

KOP	Key Observation Point
kV	Kilovolt
kW	Kilowatt
kWh	Kilowatt-hour
LID	Low Impact Development
LLC	Limited Liability Corporation
MFL	Managed Forest Law
MHz	Megahertz
MISO	Midcontinent Independent System Operator
MW	Megawatts
NAIP	National Agriculture Imagery Program
NPDES	National Pollutant Discharge Elimination System
NEXRAD	Next-Generation Radar
NHD	National Hydrography Dataset
NLEB	Northern Long-Eared Bat
NNWR	Necedah National Wildlife Refuge
NRCS	Natural Resources Conservation Service
NRIS	Network Resource Interconnection Service
NWI	National Wetland Inventory Mapping
O&M	Operations and Maintenance
OTA TV	Over-The-Air Television
PCS	Power Conversion Station
POI	Point of Interconnection
PSC	Public Service Commission
PV	Photovoltaic
REC	Renewable Energy Certificates
ROW	Right of Way
RPBB	Rusty Patched Bumble Bee
SCADA	Supervisory Control and Data Acquisition
SCS	Site Characterization Study
SER	Socio-Economic Review
SHPO	State Historic Preservation Office
SMS	Solar Monitoring Station
SNA	State-Designated or Dedicated Natural Area
SP	Poorly-graded Sand
SPCC	Spill Prevention, Control, and Countermeasures
SPT	Standard Penetration Test
SSURGO	Soil Survey Geographic Database
SWPPP	Stormwater Pollution Prevention Plan
TMY	Typical Meteorological Year
US	United States

USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWM CRM	University of Wisconsin-Milwaukee Cultural Resources Management
W	Watts
WDNR	Wisconsin Department of Natural Resources
WGNHS	Wisconsin Geological and Natural History Survey
WHS	Wisconsin Historical Society
WisDOT	Wisconsin Department of Transportation
WPDES	Wisconsin Pollutant Discharge Elimination System
WPS	Wisconsin Public Service Corporation
WWI	Wisconsin Wetland Inventory Mapping

1.0 PROJECT DESCRIPTION AND OVERVIEW

Badger Hollow Solar Farm LLC (Badger Hollow), an affiliate of Invenergy LLC (Invenergy or Applicant), respectfully submits this document as part of its application to the Wisconsin Public Service Commission (Commission) for a Certificate of Public Convenience and Necessity (CPCN) pursuant to the Wis. Stat. §196.491 and Chapter PSC 111, Wisconsin Administrative Code. The Applicant is also seeking Wisconsin Department of Natural Resources (DNR) permits that are applicable to the Project and as identified by the DNR response to the Engineering Plan dated March 27th, 2018.

Badger Hollow proposes to construct a photovoltaic (PV) solar energy generating facility and associated systems totaling up to 300 megawatts (MW) alternating current (AC) nameplate capacity (Badger Hollow Solar Farm or the Project) in Iowa County. The associated facilities may include on-site battery storage. The Badger Hollow Solar Farm will use single-axis tracker systems and be placed in service by the end of 2023. The Project is described in more detail throughout this Application.

Any generation facility of 100 MW or greater requires a CPCN. This application presents information required by the PSC as described in their renewable energy guidance documents. Information is organized and presented to comply with Application Filing Requirements (AFR) of the PSC.

The Project will require the CPCN from the PSC, review and/or applicable permits from the DNR and other state agencies such as Wisconsin Department of Transportation (WisDOT) and the Department of Agriculture, Trade and Consumer Protection (DATCP). Though not required, the Project will seek a conditional use permit from Iowa County.

1.1. General Project Location and Description of Project and Project Area

1.1.1. Provide the following information about the Project:

1.1.1.1. Project Location - counties and townships in the Project Area.

The proposed Project is located in western Iowa County, Wisconsin adjacent to the Villages of Montfort and Cobb; the majority directly south of U.S. Highway 18, approximately 1,100 acres extend north of U.S. Highway 18, with the entirety of the Project being east of State Highway 80, which is the county line with Grant County. The proposed Project boundary includes properties in Mifflin, Eden, and Linden townships, and a small area at the south end of the Village of Cobb.

1.1.1.2. Size of Project Area in acres.

The Project will be built on approximately 3,500 acres of leased land within an approximately 10,700-acre Project Area boundary (16.7 square miles).

Additional Information in Response to Commission Staff Information Request No. 01.1.

Staff Information Request No. 01.1. (Application page 1, Section 1.1.1.2, AFR Section 1.1.1.2.) Identify both the acres of properties that would be purchased and the acres of properties where easements would be acquired.

Badger Hollow has secured an option to purchase 10 acres for the Operations and Maintenance (O&M) building and project substation. The final Point of Interconnection (POI) may require an additional land purchase if the "New Eden" substation is selected as the final POI. Badger Hollow has secured solar easements on approximately 3,500 acres of land. Please see Table 1.5.3.1.5.a.

Additional Information in Response to Commission Staff Information Request No. 01.3.

Staff Information Request No. 01.3. (Application page 1, Section 1.1.1.2, AFR Section 1.1.1.2.) Confirm that the proposed 3,500 acres of leased land would comprise the total acreage required for a 300 MW facility. Verify that 3,500 acres would accommodate the 25 percent additional acreage required for alternative panel siting. Provide a table listing the acreage, purpose, and affected landowner for all existing or potential easements. Table 1.5.1.3 could serve as a model for such a table, with an added column for acreage.

3,500 acres is more than what is required for the 300 MW project. Assuming no more land is leased, approximately 2,200 acres of the proposed 3,500 acres can comprise the entire project. It is possible that future leases will be acquired within the project boundary to optimize design or reduce overall impacts from the facility construction and operation.

The proposed 3,500 acres would accommodate the 25% additional acreage required for alternative panel siting. The 25% alternative panel siting layout is shown in Figures such as 4.1.1 and 4.1.2. See, also, Table 1.5.3.1.5.a., which now includes a column for acreage.

1.1.1.3. Size (rated capacity), in megawatts, of the proposed Project.

The Project will have an installed capacity of up to 300 MWAC. Power is generated by the panels as direct current. This is then converted to alternating current by inverters. Total power production by the panels may be up to 408 MWDC (direct current).

PV panels (modules) produced by a wide range of manufacturers are under consideration for the Project, including Canadian Solar, First Solar, Hanwha Qcells, JA Solar, Jinko, Longi, Risen, SunPower, and Trina. The Project will analyze current market offerings to make a final selection on specific solar module, inverter and racking system equipment. These panels have approximately 335-445 watts (W) of DC power output individually, and thus the Project would require 900 thousand to 1.2 million high-efficiency solar PV panels.

Additional Information in Response to Commission Staff Information Request No. 01.4.

Staff Information Request No. 01.4. (Application page 2, Section 1.1.1.3 and Appendix C, AFR Section 1.1.1.3.) The application states that typical panels have a normal rating of 335 to 445 watts of DC power production, leading to a need for 900,000 to 1.2 million individual panels to provide a total of about 400 MW of DC power, which corresponds to about 300 MW of AC power. Later, in Table 5.3.3.1, the primary array area for the project is expected to be 2,228 acres. For a typical panel module size of about 21 square feet, that would be equivalent to over 4.5 million panels, instead of the 1.2 million mentioned. Realizing that not all of the 2,228 acres would necessarily be solar panel arrays, there still appears to be a significant disparity between these different calculations. Verify the calculations mentioned above and provide a more extensive explanation for how the 2,228 acres would be used if 1.2 million panels are needed.

The referenced calculations from the CPCN application are correct. Solar panels necessary to attain 300 MW of generating capacity would have a cumulative surface area of approximately 700 acres when they are tilted flat and level.

However, this response attempts to clarify two fundamentally different references to "area": (1) the cumulative surface area of a large number of solar panels and (2) the geographic area needed for a photovoltaic solar energy generating facility with a single axis tracking system. The difference between the cumulative surface area and the geographic primary array area (within the fence line) is generally explained by the following:

- 1) The higher performance of the tracking system requires adequate spacing of aisles within each power block to avoid shading. Thus, the cumulative area of solar panels at flat, 180 degree angles is estimated to be less than 35% of the total array area.
- 2) There will be additional setbacks from fences, trees, roads, etc., that are required to comply with local zoning and operational requirements of the project.
- 3) Areas within the primary array area that would have greater impact due to disturbed wetlands, increased grading, etc. were avoided in designating the primary array area.
- 4) As covered in more detail in section 1.4 of the CPCN application, the primary array area includes uniform power blocks wherever possible to reduce cost and impact.

1.1.1.4. Number of panel sites proposed for the Project and the number of alternate panel sites that have been identified

The application requirements identified in this section are fully addressed in sections 1.4.2 and 1.5 of this Application.

1.1.2. Provide a general map showing the location of the Project Area, nearest communities, townships, and major roads.

Include an inset map showing where the Project is located in the state. Scale should be appropriate for showing communities within at least 10 miles of the Project Area boundary.

See Figure 1.1.2 for a map of the Project Area and surrounding area.

1.2. Ownership

Identify the corporate entity or entities that would own and/or operate the plant.

Invenergy develops, builds, owns and operates large-scale energy facilities across four core technologies: wind (92 projects; 13,246 MW), natural gas (12 projects; 6,127 MW), solar (15 projects; 565 MW), and battery storage (6 projects; 94 MW). Invenergy projects are mainly located in the United States, with other projects located in Japan, Poland, Scotland, and Uruguay. Invenergy has a proven development track record of 125 large-scale projects developed totaling more than 20,000 MW.

In Fond du Lac and Dodge Counties, Wisconsin, Invenergy developed the Forward Wind Energy Center (Forward), a 129 MW wind energy generation facility that began operation in 2008 and provided wind energy to Wisconsin Public Service, Wisconsin Power and Light and Madison Gas and Electric. Public Service Commission Docket No. 9300-CE-100. Invenergy constructed and operated Forward for 10 years while providing energy and renewable energy certificates (RECs) to its customers, and recently sold Forward to the customers [Docket 05-BS-226] and will continue to operate the Project through its remaining service life.

Badger Hollow Solar Farm LLC (Badger Hollow) is a Delaware Limited Liability Company authorized to do business in Wisconsin. Badger Hollow is a wholly-owned subsidiary of Invenergy.

Badger Hollow will develop, design, permit, construct and operate the Project and sell the electrical output of the Project to customers pursuant to one or more agreements. Alternatively, Invenergy will sell some or all of the Project to one or more public utilities, with Invenergy remaining as the builder and operator of the Project. This structure is more thoroughly described in section 1.3.6.

1.3. Project Need/Purpose

1.3.1 through 1.3.5.

These sections are omitted as they only apply to utility sponsored projects.

1.3.6. Energy Agreements

1.3.6.1. Identify all Wisconsin utilities under contract for delivery of energy from the proposed project.

1.3.6.2. For each utility under contract or with which an agreement in principle for delivery of energy is in place provide the following, by utility:

1.3.6.2.1. Rated capacity under contract.

1.3.6.2.2. Annual energy to be delivered under contract or expected to be delivered.

Badger Hollow, directly or in connection with its affiliates, will cause the Project to be developed, designed, permitted, and constructed under one of two general plans.

Under the first scenario, Badger Hollow will enter into an Asset Purchase Agreement (“APA”) with Wisconsin Public Service Corporation (“WPS”) and Madison Gas & Electric (“MGE”) whereby WPS and MGE will acquire undivided interests in the Project equivalent to 150 MW of the Project’s generating capacity. WPS and MGE will acquire these interests after the completion of substantial development and permitting milestones for the Project. The consummation of the transactions under the APA will be subject to, among other conditions, the issuance of regulatory approvals from the Commission. The regulatory approvals from the Commission will include the grant of a CPCN to Badger Hollow and the grant of Certificates of Authority (“CAs”) to WPS and MGE. At closing of the APA, Badger Hollow will assign to WPS and MGE, undivided interests in the assets and rights comprising the Project, including the CPCN, equivalent to a 150 MW portion of the Project. Separate agreements with WPS will have an affiliate of Badger Hollow function as the EPC contractor to construct the Project and Invenergy Services LLC function as the operations and maintenance services provider to operate and maintain the 150 MW portion of the Project for no less than the first 10 years of the Project’s life. Further, under this scenario, Badger Hollow or an affiliate thereof will construct and operate the remaining 150 MW portion of the Project and sell power related to such portion under a long-term power purchase agreement or will market the remaining 150 MW capacity of the Project to other potential customers in the structure of a purchase and sale transaction.

In the event that the regulatory approvals are not obtained by WPS and MGE from the Commission or the transactions under the APA are not consummated, then Badger Hollow, provided it receives a CPCN from the Commission, will, directly or indirectly through its affiliates, construct and operate the Project by selling the power using long term power purchase agreements. Badger Hollow would reserve the right to sell or assign the Project, or a portion thereof, to another qualified entity at any time before, during or after the Project is constructed. Any future buyer or assignee will be required to meet all permit conditions and any power purchase agreement obligations associated with the Project or portion thereof.

Additional Information in Response to Commission Staff Information Request No. 01.5.

Staff Information Request No. 01.5. (Application page 3, Section 1.3.6.1, AFR Section 1.3.6.1.) Provide a table clarifying intended ownership shares and MWs controlled for all Wisconsin utility partners who may be involved in the project, as well as portions to be retained by Badger Hollow. Provide tables for all major operational possibilities.

Further information responsive to this request is included in Table 01.5 below:

Intended Ownership Shares and Capacity (Response to Q 01.5)		
Entity	Percent Ownership	Capacity (MW)
Wisconsin Public Service Corporation	33%	100
Madison Gas & Electric	17%	50
Badger Hollow Solar Farm LLC	50%	150
Total	100%	300

Additional Information in Response to Commission Staff Information Request No. 01.6.

Staff Information Request No. 01.6. (Application page 3, Section 1.3.6.2.2, AFR Section 1.3.6.2.2.) No estimate of energy expected to be delivered is provided in this section. Explain why this information is excluded.

This information is provided in Section 2.1.4.2 of the Application: "Badger Hollow estimates an average annual output of between approximately 526,000 and 788,000 MWh. Annual energy production output will depend on final design, site specific features, and annual variability in the solar resource." WPS and MG&E's 150 MW share of the project should yield 263,000 to 394,000 MWh.

1.4. Alternatives

Invenergy is a private, independent developer with decades of experience identifying and vetting sites for renewable energy projects. The sections below describe the process by which Invenergy identified the Project site, starting with consideration of other possible sites across Wisconsin.

Under the PSC guidelines for renewable energy development and after discussion with PSC Staff, Badger Hollow included 25% additional sites for solar panels beyond the minimum necessary for the desired project size of 300 MW. By offering the Commission the ability to select locations of solar panels within the greater project area that will comprise an approved project, Badger Hollow is placing before the Commission a wide

variety of feasible alternative locations, limited only by the requirement that Badger Hollow be able to optimize the electrical and structural arrangement as certain areas are removed for consideration.

The boundaries of the Badger Hollow Project Area encompass approximately 10,700 acres. This is far larger than Badger Hollow needs to complete the Project. These boundaries can encompass a full-scale solar facility and alternatives which offer a variety of different characteristics and allows the Commission to consider multiple configurations for the Project with unique benefits and choices. The impacts described in this document are based on a 375MWAC layout, which is 25% in excess of the capacity of the proposed Project. The 375MW layout, including designation of primary locations consisting of 300MW of capacity is shown in Figure 4.1.1.

The proposed sites for placement of solar generating equipment were evaluated for their topography, land rights, compliance with a uniform “power block” construction, minimal impacts to adjacent residents, and proximity to the Project’s electrical infrastructure.

Additional Information in Response to Commission Staff Information Request No. 01.9.

Staff Information Request No. 01.9. (Application page 7, Section 1.4, AFR Section 1.4.) If "power block" groups using inverters larger or smaller than the 3 MW size discussed are employed, describe how the layout of the site would be affected. Specifically, comment on minimum spacing needed between power block groupings, if any, and how such changes would alter aspects of the project, if larger or smaller power blocks end up being used. If more or less acreage would be required, provide estimates of the change to the project footprint and easements. Also, discuss the alterations to project scope, timeframe, and budget if different efficiency power block groupings would be utilized.

If the Project ends up utilizing a different size power block (larger or smaller than 3MW), there will be no significant impact on the layout of the site. There is no minimum distance between power blocks, just the minimum spacing east-west between the rows of solar panels. There are economic benefits of larger power blocks stemming from fewer inverters that need to be procured, however there are also economic downsides of the extra length in cabling required to connect each panel to an inverter. While a larger power block could in theory make it harder to keep each power block uniform (a perfect standard rectangle), as each individual power block will take up more area, this would have a very small effect in practice because the difference in power block size is minimal compared to the total project footprint. Badger Hollow would not anticipate any material alternatives to project scope, timeframe, and budget if different efficiency power block groupings would be utilized and would not anticipate any material change to the project footprint and easements if different acreage amounts would be required. Badger Hollow is considering inverters in the range of 2.5-4.0MW each.

1.4.1. Supply Alternatives: Utilities Only

This section is omitted because it only applies to public utility sponsored projects.

1.4.2. Project Area Selection

1.4.2.1. Alternative Project Areas - Describe the project area screening and selection process used to select the proposed project area. Provide the following:

1.4.2.1.1. List individual factors or site characteristics used in project area selection.

1.4.2.1.2. Explain how individual factors and project area characteristics were weighted for your analysis and why specific weights were chosen.

1.4.2.1.3. Provide a list of all project areas reviewed with weighted scores for each siting factor or characteristic used in the analysis.

1.4.2.2. Provide a narrative describing why the proposed project area was chosen.

This section addresses the requirements of Section 1.4.2 of that Application Filing Requirements, including all subsections, i.e., 1.4.2.1 through 1.4.2.2.

Invenergy initially considered development of a utility-scale solar energy project in Wisconsin in late 2016 due to the ongoing decline in the cost of solar energy that would provide Wisconsin utilities an opportunity to source clean energy within the state at an affordable price. The Project Area was selected after analyzing the entire state of Wisconsin for potential utility scale solar farm sites. In evaluating sites, Invenergy considered the solar resource, proximity to transmission infrastructure, topography, ground cover and community acceptance. Favorable results for all of these categories are found in the Badger Hollow Project Area.

Tier One Evaluation – State Level

Badger Hollow reviewed several solar resource datasets to identify areas within the state with adequate solar resource necessary to make the Project economically feasible.

Unlike wind energy sites, where the resource is very site specific, the solar resource can be characterized on a more regional level. Based on data collected, southwestern Wisconsin was identified as one of the strongest resources in the state due to its latitude and favorable weather patterns. As a result of the findings, Badger Hollow moved ahead to evaluate the region for further evaluation.

Tier Two Evaluation – Regional Level

The purpose of a second tier evaluation was to determine if specific criteria could be met within the region that would result in the identification of a viable Project Area. The key criteria were sufficient land available for this size project, engineering and design, environmental compatibility, and community support and acceptance. Specifically, Badger Hollow evaluated the following:

- Availability of land and compatibility with existing land uses including consideration of ground cover;
- Slopes;
- Project engineering and design parameters;
- Location of existing substations and transmission lines suitable for interconnection;
- Community and landowner support and acceptance of the Project; and
- Preliminary review of environmentally sensitive areas, such as parks, wetlands, waterbodies, habitats, etc.

The potential use of existing Brownfield sites within the region was evaluated. A comprehensive list of Brownfield sites was accessed from the US EPA website, and 113 properties were identified in the approximately 9,250 square mile area covering southwest Wisconsin. The average size of these properties was less than five acres, and further searching at the state level showed the largest brownfield property as 369 acres in Oneida, WI¹.

Given the land requirements of the proposed Project, it was concluded that no Brownfield sites would be suitable.

The results of the evaluation identified an area of land within Iowa County that met the criteria needed for further development of the Project. The following conclusions were made about the area identified during the tier two evaluation:

- Significant tracts of cleared land are available within the region.
- Specific areas of the region are suitably flat to allow for economical construction of solar energy generation equipment
- The Project Area is located near an existing electric transmission line thought to be suitable for interconnection. Badger Hollow prioritized access not only to transmission lines, but existing substations to minimize construction costs. Invenenergy has performed an internal engineering analysis of the local electrical infrastructure and believes it is likely to have available capacity without the need for excessively costly network upgrades, though the official determination of necessary network upgrades will come after conclusion of the MISO study process.
- Initial and ongoing community and landowner outreach indicated community support and acceptance of the Project in the proposed area.
- The region has a history of renewable electricity generation from the Montfort Wind Energy Center, which began operating in 2001. Likewise, many local

¹ United States Environmental Protection Agency. February 2018. Cleanups in My Community. <https://www.epa.gov/cleanups/cleanups-my-community#map>

landowners recognized the value to their farm operations and land ownership by harvesting the sun instead of traditional agricultural crops, and signed up for voluntary solar easements.

- Badger Hollow performed preliminary environmental reviews to determine sensitive environmental resources in the Project Area so as to avoid or minimize any potential adverse environmental impacts. The results of this preliminary review show that adverse impacts to the environment are avoidable or unlikely.

Tier Three Evaluation – Project Area Level

Once the Project Area was identified from the second tier study, Badger Hollow continued to collect data, refine placement of the solar arrays based on engineering and design parameters, and conduct community and landowner meetings to solicit public input.

In addition, to satisfy the Commission's requirement that the Project propose alternative sites, the impacts described in this document are based on a 375MWAC layout, which is 25% in excess of the capacity of the proposed Project. The 375MW layout, including designation of primary areas consisting of 300MW of capacity and alternate areas sufficient for 75 MW of capacity is shown in Figure 4.1.1.

Within the Project Area, specific criteria for the tier three evaluation included the following:

- Land Use and Zoning, Including Applicable Setback Requirements
- Site Topography and slopes
- Geology
- Soils
- Existing Vegetative Communities
- Threatened and Endangered Species
- Archaeological and Historical Resources
- Surface Water Resources
- Wetlands
- Floodplains
- Projected Noise Levels
- Aviation
- Recreation and Publicly Owned Lands
- Community Services
- Transportation Infrastructure
- Efficiency of construction and conformity to uniform power blocks
- Public Outreach and feedback from Project neighbors

Invenenergy believes that the most efficient construction can be attained by constructing the Project in uniform power blocks. An ideal configuration from a constructability standpoint for 3 MW inverters would be rectangles with an inverter in the center and the

surrounding 20 acres being used for modules on the tracking system that feed electricity to that inverter. If the inverter ultimately chosen for the Project is smaller than 3 MW, the power block area would be correspondingly smaller, and vice versa for larger inverters. Badger Hollow requests that the Commission recognize the merits of constructing in uniform power block shapes, and if certain portions of the designated primary areas are determined to be unsuitable, Badger Hollow will look to reconfigure the remaining, approved areas to retain whole power blocks, rather than shaving off certain areas of a power block.

The fundamental physics of solar energy production can allow for generating a given amount of power from a given land area, but clearly there is a difference in efficiency of construction for a uniform power block, vs. an irregular shape. For example, consider the Mickey Mouse shaped solar array near Disney World². While this may be a suitable configuration that meets the multiple goals of Disney World, Badger Hollow will be placing a higher priority on the overall cost to construct the Project, and thus seeks to maintain uniform, rectangular power blocks that minimize cost and complexity.

To the extent a preferred or primary area is decided to be non-optimal by the Commission, Badger Hollow asks the Commission to consider the effects of such a decision on the “power block” building block concept. If a specific portion of the primary area is rejected for consideration for construction and a power block cannot be shifted, the result would be suboptimal from a construction standpoint as that particular power block would have unique wiring and racking considerations that create additional engineering work, logistical considerations and construction complications. Badger Hollow is contemplating building one hundred identical 3 MW power blocks, and the closer the Project can adhere to that ideal, the more efficient construction will be and, thus, the more economical the project’s output will be.

Badger Hollow respectfully requests that the Commission review the designated primary areas for solar arrays and alternates and approve a final area for use by Badger Hollow. Badger Hollow can make final equipment and design decisions in a cost efficient manner.

Additional Information in Response to Commission Staff Information Request No. 01.7.

Staff Information Request No. 01.7. (Application page 5, Section 1.4.2.1.2, AFR Section 1.4.2.1.2.) Explain how individual factors and project area characteristics were weighted for your analysis and why specific weights were chosen.

Project area selection is a mix of quantitative and qualitative analyses.

² Oh My Disney. 2016. Mickey-Shaped Solar Facility Activated Near Walt Disney World. <https://ohmy.disney.com/news/2016/04/14/mickey-shaped-solar-facility-activated-near-walt-disney-world/>

Tier One Evaluation – State Level: Badger Hollow analyzed the state in terms of solar irradiation potential (kWh/m³/Day). This metric equates to the available "fuel" for this generating facility and the amount available is directly proportional to the available generation. The southwest quarter of Wisconsin generally has the highest solar resource in the state, and thus was considered for further evaluation.

Tier Two Evaluation – Regional Level: all of the Tier Two factors at the Badger Hollow site are considered "strong" and these are generally binary considerations – if all of these are not extant within a site, it is not suitable for development.

- Availability of land and compatibility with existing land uses including consideration of ground cover;
- Slopes;
- Project engineering and design parameters;
- Location of existing substations and transmission lines suitable for interconnection;
- Community and landowner support and acceptance of the Project; and
- Preliminary review of environmentally sensitive areas, such as parks, wetlands, waterbodies, habitats, etc.

Tier Three Evaluation – Project Area Level: the criteria listed in the original application were binary considerations. All areas in the primary and alternate array areas passed this criteria.

Additional Information in Response to Commission Staff Information Request No. 01.8.

Staff Information Request No. 01.8. (Application page 5, Section 1.4.2.1.3, AFR Section 1.4.2.1.3.) Provide a list of all project areas reviewed with weighted scores for each siting factor or characteristic used in the analysis.

Badger Hollow presumes this question relates to the 2nd and 3rd tiers of the evaluation process described above. Badger Hollow believes that this project area was far superior to all others in the region of the southwest quarter of Wisconsin. Invenergy considered two other areas in the general vicinity of the project area but rejected them because they were not as good as this project area, but a specific numerical scoring system was not used. One area was due west about 30 miles in Grant County, which was the location at the time of a wind energy development by Invenergy. Though the area had many landowners that were receptive to renewable energy, the terrain in that area is more heavily wooded, has greater slopes, and it was unclear whether the transmission line in that area had adequate capacity for the desired project size. The second alternative project area Invenergy considered for Badger Hollow was on the Potosi-Hillman 138 kV transmission line at a location about 20 miles southwest of the project area, but it had inadequate land area at acceptably mild slopes for further development.

1.5. Array Layout Selection

1.5.1. List the individual factors or characteristics used to select the proposed and alternative panel sites.

Within the Project Area, the proposed sites for placement of solar generating equipment were evaluated for their topography, land rights, compliance with a uniform “power block” construction, minimal impacts to adjacent residents, and proximity to the Project’s electrical infrastructure.

1.5.2. Provide information on how solar array location site characteristics and the types of panels chosen factored into the selection of the final site.

Using high efficiency modules enables the Project to minimize the footprint within the Project Area required to reach the desired capacity. To minimize environmental impact, The Project utilizes relatively flat, open terrain, which should require little to no grading, and no clearing of wooded areas. In addition, where possible, the layout included symmetrical 3MW power blocks and parcels in proximity to each other to minimize the cost of underground collection lines.

1.5.3. Panel Setback Distances.

1.5.3.1. Minimum setback from:

1.5.3.1.1. Residence.

1.5.3.1.2. Property lines.

1.5.3.1.3. Other buildings (e.g. animal barns, storage sheds).

1.5.3.1.4. Roads.

This section addresses the requirements of Section 1.5.3.1 of the Application Filing Requirements, including all subsections, i.e., subsections 1.5.3.1.1 through 1.5.3.1.4.

Table 1.5.3.1.5 a – Landowner Easement Type and Status

Number	Landowner Name	Type	Status	Acres
1	Daniel J. Adams Living Trust	Solar Easement	Signed	322.28
2	Theodore G. and Karen M. Fritsch	Solar Easement	Signed	158.75
3	Leroy E. Jr. and Susan Kay Grunenwald	Solar Easement	Signed	101.36
4	Daniel W. Longseth	Solar Easement	Signed	45
5	Donald W. Schult	Solar Easement	Signed	160
6	Thomas A. and Charity L. Shaull	Solar Easement	Signed	160
7	Wil-Clar Farm LP	Solar Easement	Signed	200
8	Kenneth D. and Evelyn J. Wunderlin, Trustees of the Wunderlin Living Trust Dated March 10, 2010	Solar Easement	Signed	305.9
9	Robert C. and Ruth L. Kramer	Solar Easement	Signed	172.77
10	Dennis and Susan Welsh	Solar Easement	Signed	240
11	Cornish Hollow Stables, LLC	Solar Easement	Signed	73.98
12	Bradley C. Bishop	Solar Easement	Signed	188.25

Table 1.5.3.1.5 a – Landowner Easement Type and Status				
Number	Landowner Name	Type	Status	Acres
13	Robert C and Linda M Bishop	Solar Easement	Signed	142.086
14	CR Bishop & Sons Inc	Solar Easement	Signed	292.89
15	Filly Family LLC	Solar Easement	Signed	130.51
16	Peggy A Holmes	Solar Easement	Signed	77.3
17	James D Kite	Solar Easement	Signed	46.97
18	Peter C Melby	Solar Easement	Signed	385
19	Evelyn L Mueller Rev Trust	Solar Easement	Signed	40
20	The Village of Cobb, Iowa County, Wisconsin	Solar Easement	Signed	37.625
21	Timothy S Novak & Todd D Novak	Solar Easement	Signed	234.23
22	Jeffrey Ruzicka	Transmission Easement	Signed	N/A
23	C.R. Bishop and Sons	Transmission Easement	Signed	N/A
24	William C. and Ruth A. Spurley	Transmission Easement	Negotiating – Executable agreement in-hand. Signed with competing developer and have indicated they will sign with the Project if the other developer approves, which Badger Hollow believes is highly likely due to ongoing discussions with the other developer.	N/A
25	Deane and Nancy Thomas	Transmission Easement	Signed	N/A
26	Samuel Johnson	Transmission Easement	Negotiating	N/A
27	Evelyn L Mueller Rev Trust	Transmission Easement	Negotiating – Existing easement in place with landowner on a different parcel nearby (line 19).	N/A
28	Calvin F. Gatch Jr. and Barbara E. Gatch	Solar Easement	Signed	1
			Total	3515.901

All land within the Project is zoned A-I Agricultural or AC-1 Agricultural Conservation. All potentially applicable Iowa County requirements on setbacks have been incorporated in the design. In addition, additional setbacks from wetlands and electrical transmission were incorporated into the site layout. These setbacks are summarized in Table 1.5.3.1.5b below.

Table 1.5.3.1.5 b – Badger Hollow Setback Matrix	
Type	Distance (feet)
Iowa County A-1 and AC-1 Agricultural District Setbacks	
Yards (participating and non-part.)	20
Structures (participating and non-part.)	20
State and Federal Highways	
Setback from ROW	50
Setback from Centerline	110
County Trunk Highways	
Setback from ROW	42
Setback from Centerline	75
Town Public Roads	
Setback from ROW	30
Setback from Centerline	63
Visual Clearance Triangle*	
State and Federal Highways	300
County Trunk Highways	200
Other Roads	150
Additional Setback Assumptions	
Wetlands	50
Electric Transmission	50

**In each quadrant of every public road intersection, there shall be a visual clearance triangle bounded by the road centerlines and a line connecting points on them by the visual clearance distance from the intersection; "no visual obstructions...shall be permitted within the area of the visual clearance triangle*

Additional Information in Response to Commission Staff Information Request No. 01.10.

Staff Information Request No. 01.10. (Application page 11, Section 1.5.3.1, AFR Section 1.5.3.1.) Table 1.5.3.1.b provides setbacks for roadways, waterways, and electric transmission. Either provide the same information for residences, property lines, and other buildings in the project area, as required, or justify why the information is not included.

Table 1.5.3.1.b, above, provides the requested information for setbacks for roadways, waterways, electric transmission, residences, property lines and other buildings. Specifically Table 1.5.3.1.b includes setbacks from yards (participating and non-participating landowners, which includes property lines) and structures (participating and non-participating landowners, which includes residences and other buildings).

1.5.3.2. Identify any sites where setback waivers are needed or have been executed.
No setback waivers are required.

1.6. Cost

This section is omitted as it is only applicable to public utility sponsored projects.

1.7. MISO and Project Life Span

1.7.1. MISO Market - Describe how, at the time of this filing, the proposed facility will be treated as an intermittent resource in the MISO market.

Intermittent resources in the Midcontinent Independent System Operator (MISO) such as wind and solar may qualify to provide both energy and capacity to the MISO market so long as they are registered with MISO and deliverable to load via Network Resource Interconnection Service (NRIS) or Firm Transmission Service. Badger Hollow has applied to MISO for NRIS for the full 300MW of installed capacity of the Project. Per MISO's Business Planning Manual 11, Section 4.2.3.4.1, solar photovoltaic (Solar PV) projects in MISO have their capacity value determined based on the three year historical average output of the resource for hours ending 15, 16, and 17 EST for the most recent summer months (June, July, and August). Solar PV resources that are new, upgraded or returning from extended outages submit all operating data for the prior summer with a minimum of 30 consecutive days, in order to have their capacity registered with MISO. Resources with less than 30 days of metered values would receive the class average of 50% for its Initial Planning Year.

1.7.2. Provide an Estimate of the Expected Life Span for the Solar Plant

The modules are warranted by the manufacturer to perform at 80% of installed capacity at year 25 of operations. Based on internal analysis and operating experience by Invenergy, Badger Hollow anticipates actual residual capacity to be 85% after 30 years. The base operating case for the Project is 30 years, but actual life span could be longer. The Solar Lease and Easement Agreements provide for a total operating period of 50 years.

1.7.3. Describe how the Facility will be Decommissioned at the End of Life Span

At the end of commercial operation, Badger Hollow will be responsible for removing all of the solar arrays and associated facilities. Badger Hollow reserves the right to extend Commercial Operations by applying for an extension of any required permits. Should Badger Hollow decide to continue operation, a decision would be made as to whether the Project would continue with the existing equipment or to upgrade the facility with newer technologies.

Decommissioning of the Project at the end of its anticipated 50 year useful life would include removing the solar arrays, inverters, transformers, above-ground portions of the electrical collection system, fencing, lighting, substation, access roads and the O&M facility from the Project Area. Standard decommissioning practices will be utilized, including dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements, followed by restoration of the site.

Badger Hollow expects to implement the following decommissioning plan:

Timeline

Decommissioning is estimated to take approximately 12 months to complete and the decommissioning crew will ensure that all equipment is recycled or disposed of properly.

Removal and Disposal of Project Components

Modules will be inspected for physical damage, tested for functionality, and removed from racking. Functioning modules will be packed and stored for reuse. Non-functioning modules will be sent to the manufacturer or a third party for recycling or other appropriate disposal method.

Racking, poles, and fencing will be dismantled/removed and will be sent to a metal recycling facility. Holes will be backfilled.

Aboveground wire will be sent to a facility for proper disposal and/or recycling. Belowground wire will be cut back to a depth of four feet and abandoned in place.

Aboveground conduit will be disassembled onsite and sent to a recycling facility.

Junction boxes, combiner boxes, and external disconnect boxes will be sent to an electronics recycler.

Inverters will be sent to the manufacturer or an electronics recycler as applicable and functioning parts will be reused.

Material from concrete pads will be removed and sent to a concrete recycler.

Computers, monitors, hard drives, and other components will be sent to an electronics recycler and functioning parts will be reused.

Unless otherwise requested by the landowner, permanent access roads constructed for the Project will be removed.

After all equipment is removed, the Project Area will be restored to a condition reasonably similar to its pre-construction state. Soil will be de-compacted and re-seeded with an appropriate mix to prevent erosion until it can be returned to agricultural use.

Additional Information in Response to Commission Staff Information Request No. 01.11.

Staff Information Request No. 01.11. (Application page 12, Section 1.7.3, AFR Section 1.7.3.) Provide examples of decommissioning of other large solar farms.

Badger Hollow is not aware of any photovoltaic solar energy generating systems greater than 100 MW that have been decommissioned.

Additional Information in Response to Commission Staff Information Request No. 01.12.

Staff Information Request No. 01.12. (Application page 12, Section 1.7.3, AFR Section 1.7.3.) Regarding decommissioning, provide details regarding how cropland would be returned to pre-construction yields after 50 years of use. Include the depth that underground facilities would be removed. Explain how soil health would be assessed in order to determine the correct soil mitigation measures that are necessary, such as the addition of topsoil and/or nutrients.

To facilitate a return to agricultural use following decommissioning, the land would be tilled to break the new vegetative growth, which will have enhanced the topsoil condition. The selection of native prairie and savanna species as the primary vegetation cover for the project is ideal for improving and maintaining soil health. The topsoil present on the project site, which has benefitted agriculture for several decades, was created over time by deep-rooted perennial native species prior to its conversion for agricultural use. Even minimally diverse prairies provide superior rainwater infiltration and control, filtering and improving the quality of groundwater, and increasing soil health.

It has been well documented that the use of native prairie and savanna species on the land will result in tangible soil improvements including significantly reduced topsoil loss through erosion, an increase in soil organic carbon levels, improved soil fertility through increased organic matter, and improved soil moisture and drought resilience. (Kimbal et al. 2009. Soil Carbon Management., CEC press). In addition, a shift in soil microorganisms to a higher fungal/microbial ratio overall is expected to improve the soil structure and stability against erosion.

Accordingly, because of the improvement to soils, it is very likely the cropland will be returned to pre-construction yields or better after 50 years of use as a solar generating facility.

Please see section 6.5.6.1.1 for additional information.

Project facilities will be removed to a depth of four feet as part of decommissioning.

Badger Hollow contractor Applied Ecological Services (AES) is preparing a soil health assessment plan for properties proposed to host solar facilities to establish baseline soil characteristics and health. Typical soil health assessments include quantification of a variety of factors such as water capacity, hardness, organic matter, protein, respiration, active carbon, chemical composition, and microbial content and other factors. Surface and subsurface water sampling on the site is also proposed. University of Wisconsin Agricultural Ecology program on soil health measurement will be consulted as well as

Natural Resources Conservation Service (NRCS) recommendations. At decommissioning, similar methodologies would be employed to accurately compare the soil health conditions.

1.7.3.1. Provide an estimate of the cost of and source of funding for decommissioning
Decommissioning Resource Plan

Badger Hollow will be responsible for decommissioning the Project and associated facilities. Badger Hollow has included an obligation to decommission the Project components in the Project's solar lease and easement agreements with participating landowners. Because of the uncertainty in predicting the value of equipment reuse and salvage, Badger Hollow will create a decommissioning plan at the 15th anniversary of the commencement of operations. At that time Badger Hollow will post a form of financial security, such as a surety bond, letter of credit, escrow account, reserve fund, parent guarantee or other suitable financial mechanism, if any net cost of decommissioning exists.

Additional Information in Response to Commission Staff Information Request No. 01.13.

Staff Information Request No. 01.13. (Application page 13, Section 1.7.3.1, AFR Section 1.7.3.1.) Provide a decommissioning cost estimate and funding source coinciding with the commencement of commercial operation.

Badger Hollow believes that it would be most efficient to prepare a site-specific decommissioning cost estimate after receipt of a CPCN and evaluation of all permit conditions. Such information is necessary to allow for an accurate cost estimate.

Upon receipt of this question from Commission staff, Badger Hollow has conducted further research of third party projects and expects the total cost of decommissioning of Badger Hollow at the end of its useful life would be in the range of \$0 to \$8.9 million net of salvage value.

The lower range dollar figure is based on the evaluation of salvage value prices of the relevant equipment and facilities, and it is possible that decommissioning could produce a net positive cash flow. The upper range dollar figure is based on consideration of third party projects prorated to the 300 MW Badger Hollow project size.

Badger Hollow believes **that establishing a decommissioning funding source coinciding with the commencement of commercial operation is wasteful and unnecessary.** Unlike traditional forms of electricity generation, the Badger Hollow Solar Farm will have very low and stable operating costs – consisting of facility maintenance (including staff salaries), landowner payments and tax payment. These are all relatively low compared to the variable costs of fuel for traditional fossil plants, and either predictable (maintenance expenses) or guaranteed by law (taxes) or contract (landowner payments). Thus, establishing a decommissioning fund at day one of operations is not necessary. Particularly in the case of Badger Hollow, **where half the project** will be owned by

financially-stable, reputable, and regulated utilities, the likelihood of an abrupt cessation of operations and abandonment is near zero.

Further into the future there are more unknowns about the status of energy markets, solar energy's place in those markets, and generating equipment condition. Badger Hollow stands by the commitment it made in the CPCN Application in section 1.7.3.1 that it will perform a detailed estimate and post security in **year 15** of operations of the project.

1.8. Regulatory Permits and Approvals

1.8.1. Approvals and Permits

For each of the regulatory agencies listed below provide the following information:

- regulatory agency
- the approvals/permits required,
- application filing date,
- the status of each application,
- agency contact name and telephone number:

1.8.1.1. Federal

1.8.1.1.1. Federal Aviation Administration (FAA)

1.8.1.1.2. US Army Corps of Engineers (USACE)

1.8.1.1.3. US Fish and Wildlife Service (USFWS)

1.8.1.1.4. Other federal agencies not listed above

1.8.1.2. State

1.8.1.2.1. Department of Transportation (DOT)

1.8.1.2.2. Department of Natural Resources (DNR)

1.8.1.2.3. Other state agencies not listed above

1.8.1.3. Local Permits – including county, town, city, and village

The expected permit requirements for construction and operation of the proposed Project are listed in Table 1.8.1. The regulatory agency and trigger for the permit requirement are also listed.

Table 1.8.1 – Regulatory Permits and Approvals

<i>Permit</i>	<i>Regulatory Agency and Contact</i>	<i>Trigger/Notes</i>	<i>Filing Date</i>	<i>Status</i>
<i>Section 404 Wetland Permit</i>	<i>U.S. Army Corps of Engineers St. Paul District 180 5th St East, Ste 700 St. Paul, MN 55101 651-290-5807</i>	<i>Wetland / Watercourse impact: The only permanent wetland impacts anticipated are small sections of fence crossings (based on desktop wetland boundary evaluation); It appears that solar arrays and access drive routes can avoid wetland crossings. Field wetland delineation within the final Project footprint will be performed during the growing season prior to construction to confirm if any wetland permits are required. A general permit may be required.</i>	<i>N/A</i>	<i>N/A</i>
<i>Certificate of Public Convenience and Necessity (CPCN)</i>	<i>PSCW Jim Lepinski (608) 266-0478</i>	<i>New electric generating facility over 100MW</i>	<i>May 2018</i>	<i>Application Filed</i>
<i>Engineering Plan</i>	<i>WDNR (office of energy) Geri Radermacher 262-574-2153</i>	<i>CPCN</i>	<i>3/19/18</i>	<i>Received 3/27/18 response from DNR.</i>
<i>Wisconsin Pollutant Discharge Elimination System (WPDES) Construction Site Permit</i>	<i>WDNR DNR Office of Energy C. Kimberly Gonzalez 608-267-2759</i>	<i>Required due to Project size.</i>	<i>Anticipated Q2 2019</i>	<i>Draft SWPPP in Appendix L</i>

Table 1.8.1 – Regulatory Permits and Approvals

<i>Permit</i>	<i>Regulatory Agency and Contact</i>	<i>Trigger/Notes</i>	<i>Filing Date</i>	<i>Status</i>
<i>Private Well Notification Number</i>	<i>WDNR Deborah Lyons-Roehl 608-267-9350</i>	<i>Required if a new well is constructed for the O&M building.</i>	<i>Only required if it is deemed necessary to drill a new well for the O&M facilities.</i>	<i>To be completed if deemed necessary for the O&M building.</i>
<i>Utility Permit</i>	<i>WisDOT –SW Region Mark Goggin 618-789-5955</i>	<i>Utility crossing permits to construct or maintain a utility facility.</i>	<i>Anticipated Q2 2019</i>	<i>To be completed</i>
<i>Driveway Permit</i>	<i>WisDOT-SW Region Scot Hinkle 608-246-5334</i>	<i>For new driveway entrances on state roads.</i>	<i>Anticipated Q2 2019</i>	<i>To be completed</i>
<i>Oversize-Overweight Permit</i>	<i>WisDOT Motor Carrier Services P.O. Box 7980 Madison, WI 53707-7320</i>	<i>For transportation of oversize-overweight loads, such as the substation.</i>	<i>Anticipated Q2 2019</i>	<i>To be completed</i>
<i>Zoning/Conditional Use Permit</i>	<i>Iowa County Scott Godfrey 608-935-0398</i>	<i>Permit not required because of CPCN, but Badger Hollow will seek to obtain this permit.</i>	<i>Planned June 2018</i>	<i>Application in process.</i>
<i>Asbestos abatement prior to demolition</i>	<i>Mark Davis, Statewide Asbestos Program Coordinator 608-219 4251</i>	<i>Prior to renovation or demolition work, conduct asbestos pre-inspections. File Form 4500-113 if necessary per Wis. Admin Code ch NR 447.</i>	<i>Only required if it is determined recognized asbestos containing materials are present at the time of demolition.</i>	<i>To be completed prior to demolition</i>

Table 1.8.1 – Regulatory Permits and Approvals

<i>Permit</i>	<i>Regulatory Agency and Contact</i>	<i>Trigger/Notes</i>	<i>Filing Date</i>	<i>Status</i>
<i>Utility Permit</i>	<i>Iowa County Highway Department Randy Sudmeier 608-935-3381</i>	<i>Utility crossing permits to construct or maintain a utility facility</i>	<i>Anticipated by end of 2018</i>	<i>To be completed</i>
<i>Erosion and Sediment Control Plan Site Permit and Post-Construction Runoff Permit</i>	<i>Iowa County Katherine Abbott 608-930-9893</i>	<i>Preliminary Plat Review Procedure</i>	<i>Anticipated Q2 2019</i>	<i>To be completed</i>
<i>Sanitary Permit</i>	<i>Iowa County Scott Godfrey 608-935-0398</i>	<i>Septic system construction permit.</i>	<i>Application submittal dependent upon the state of the current septic system at the proposed O&M building site.</i>	<i>To be completed if deemed necessary for O&M facilities.</i>
<i>Driveway Permit</i>	<i>Iowa County, Towns of Mifflin, Linden and Eden</i>	<i>For new driveway entrances on county and township roads.</i>	<i>Anticipated Q2 2019</i>	<i>To be completed</i>
<i>Building Permit</i>	<i>Iowa County Scott Godfrey 608-935-0398</i>	<i>New construction</i>	<i>Anticipated Q2 2019</i>	<i>To be completed</i>

Any wetland impacts are expected to be limited in nature and permitted under USACE Section 404 and Wisconsin DNR General Permits. As such, a Section 401 permit is not anticipated. Field wetland delineations will be performed in the summer of 2018 and provided for DNR review to confirm this assumption. Any required permits will be applied for following PSC approval of the Project footprint.

No endangered species impacts are anticipated that would require permits from the US Fish and Wildlife Service (USFWS)

Because the Project is not proposed to be developed on or near an airport, the Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports

(78 FR 63276) does not apply. Similarly, because no proposed structures will exceed listed height thresholds, Notice of Construction is not required under 14 FR Part 77. The DATCP Agricultural Impact Statement is not required, since Invenergy is not a public utility.

Additional Information in Response to Commission Staff Information Request No. 01.14.

Staff Information Request No. 01.14. (Application page 14, Table 1.8.1, AFR Section 1.8.) Replace Regulatory Agency Contact Dan Bekta with C. Kimberly Gonzalez, DNR Office of Energy (608) 267-2759 for the WPDES Construction Site Permit.

The above Table 1.8.1 is updated with the corrected contact information provided by Commission staff.

Additional Information in Response to Commission Staff Information Request No. 01.15.

Staff Information Request No. 01.15. (Application page 14, Table 1.8.1, AFR Section 1.8.) Describe how the project would comply with asbestos regulations, Wis. Admin. Code ch. NR 447. Prior to renovation or demolition work, conduct asbestos pre-inspections. File Form 4500-113 if necessary. Contact Mark Davis, Statewide Asbestos Program Coordinator at (608) 219 4251.

The project will not include asbestos containing materials (ACM) in any new construction of generating facilities. Asbestos pre-inspections will be conducted prior to renovation or demolition work in accordance with Wis. Admin Code Ch NR 447. Form 4500-113 will be filed if necessary. The above Table 1.8.1 is updated with the asbestos information added.

1.8.2. Correspondence with Permitting Agencies-Provide copies of correspondence to and from state and federal agencies that relate to permit approval, compliance approval, or project planning and siting. Provide copies of any correspondence to or from local governments. This should continue after submittal of the application.

Copies of official correspondence to and from state and federal agencies that relate to permit approval, compliance approval, or Project planning and siting are listed below and attached in Appendix A, with the exception of the DNR ER Review which is included as confidential information in Appendix K. A log of meetings with agencies, local governments, and other interested parties is also included in Appendix S.

Table 1.8.2 – Correspondence with Permitting Agencies					
Correspondence	Regulatory Agency	Trigger/Notes	Filing Date	Meeting Date	Status
Endangered Resources Review	DNR	CPCN	DNR NHI Public Portal Dec. 2017 ERR May 4, 2018	12/5/17, 5/3/18	Completed Completed (Confidential Appendix K)
Engineering Plan	DNR	CPCN	3/19/18	12/5/17	Response Received 3/27/18 (Appendix A)
Federal Threatened and Endangered Species Consultation	USFWS	CPCN	Original Boundary IPaC Dec. 11, 2017 Updated Boundary IPaC May 9, 2018	12/5/17	Completed Completed (Appendix A)
Noise and Visual Receptors Review	PSC	CPCN	NA	4/25/18	Completed review of proposed noise monitoring and visual simulation locations.

2.0 TECHNICAL DESCRIPTION - PROJECT AREA, PANELS, PANEL SITES, AND ANCILLARY FACILITIES

2.1. Estimated Solar Resource and Projected Energy Production

Provide a complete solar resource and energy production assessment for the Project. This report should include, at a minimum:

2.1.1. *Solar data used in analysis*

The solar resource data used to estimate energy output was determined using an internal resource assessment. Invenergy evaluated several public and private datasets, including satellite modeled datasets such as the NREL Solar Prospector dataset, Solar Anywhere Clean Power Research (CPR), and data from 3Tier, as well as publicly available measurements from nearby weather stations. A Solar Met Station was installed December 19, 2017 and will stay there for a minimum of 18 months to collect solar resource and meteorological data within the Project Area. After the 18-month sampling period, the data collected from the Solar Met Station will be incorporated into the previously mentioned satellite models to improve the accuracy of the long-term resource estimates and reduce Project uncertainty. Until that data is available, CPR data was determined to be the most representative of the available sources within the Project Area and was also used as the source for the typical meteorological year (TMY) estimates used in the Project's energy assessments.

2.1.2. *Monthly and annual typical solar irradiance*

Monthly and annual typical solar irradiance estimates are provided in the table below.

Table 2.1.2 – Typical Solar Irradiance	
Month	kWh/m ²
Jan	54
Feb	75
Mar	117
Apr	141
May	169
Jun	181
Jul	193
Aug	165
Sep	128
Oct	86
Nov	56
Dec	45
Annual	1410

Additional Information in Response to Commission Staff Information Request No. 01.16.

Staff Information Request No. 01.16. (Application page 17, Section 2.1, AFR Section 2.1.) Table 2.1.2 provides estimated solar irradiance, while acknowledging that data collection using one solar meteorological station is ongoing, with updated data to be established upon completion of data collection over eighteen months. Describe the process for siting the met station, why the preferred location was chosen, and why one met station is considered sufficient to characterize the entire project site. If the updated data indicates less ideal conditions for solar irradiation than expected, describe any impacts such a discovery would have on the project.

The Solar Monitoring Station (SMS) was sited in such a way as to minimize impact to current agricultural operations, avoid any potential shading, properly characterize the site, and be accessible for a technician to maintain it once a week. One SMS is sufficient to characterize the site because solar energy is a "static resource", meaning it is highly predictable once the weather patterns for a location are known. There is not a material change in weather patterns across the Project Area and therefore one location is sufficient. The SMS utilizes multiple sensors to provide a redundancy in measurements and reduce uncertainty.

If the updated typical meteorological year (TMY) yields less ideal conditions for solar irradiation than is currently modeled, the Project's energy production estimate will decrease accordingly. However, Badger Hollow has been utilizing a conservative solar resource estimate, in accordance with its many years of solar resource measurements and analysis experience conducted throughout the United States. In addition, the act of measuring on-site solar resource data greatly reduces Project uncertainty, and that in itself has a material benefit in improving the Project's economics.

2.1.3. Gross and net capacity factor (explain the method used to calculate the capacity factors and provide the data used)

Badger Hollow Solar Farm will have an estimated gross capacity factor of between 24 and 36 percent and an estimated net capacity factor of between 20 to 30 percent.

Additional Information in Response to Commission Staff Information Request No. 01.17.

Staff Information Request No. 01.17. (Application page 18, Section 2.1.3, AFR Section 2.1.3.) Gross and net capacity factors are provided, but not the methodology or underlying data to justify the numbers. Provide the underlying data and method.

These values were found utilizing the PVSyst modeling software (the industry standard) and conservative loss assumptions based on many years of solar farm operation experience. The PVSyst output report is attached as Confidential Appendix X. These loss assumptions match those observed throughout the industry.

2.1.4. Estimated energy production of Project

2.1.4.1. Estimated production losses

Gross to net calculations take into account, among other factors, energy losses in the electrical collection system, mechanical availability, array losses, and system losses. An industry-wide estimate of energy losses ranges from fifteen to twenty percent (15 to 20 percent) of maximum output.

2.1.4.2. Estimated net energy production

Badger Hollow estimates an average annual output of between approximately 526,000 and 788,000 Mwh. Annual energy production output will depend on final design, site specific features, and annual variability in the solar resource.

2.2. Panel Type and Panel Characteristics

2.2.1. Identify the manufacturer and model of solar panels to be used.

PV panels produced by a wide range of manufacturers are under consideration for the Project, including Canadian Solar, First Solar, Hanwha Qcells, JA Solar, Jinko, Longi, Risen, SunPower, and Trina. First Solar offers thin film modules, while the rest of the modules under consideration are mono- or poly-crystalline models. A new monocrystalline silicon technology called bifacial may be available at procurement time and could be considered for use. The primary difference between a bifacial module and a monofacial module is that the back side of a bifacial module has glass instead of white plastic, allowing the solar cell to get light entering from the back along with light entering from the front side of the cell.

Modules under consideration range from 335 to 445 W DC per module. Data sheets are included in Appendix C for modules representative of those to be used. It is possible that a different manufacturer of a substantially similar product could be selected in final procurement.

Solar modules and racking systems are much more of a commodity than wind turbines or other forms of power generating equipment. In addition, new product variants (e.g. higher efficiency or higher wattage per module options) are being introduced to the market at a rapid pace. As such, it is important to maintain as much flexibility in the individual supplier and technology choice as possible until just before procurement to maintain economic viability. In addition, because the physical characteristics are very similar across technologies, the difference in impact from one specific product to another are very minor.

Additional Information in Response to Commission Staff Information Request No. 01.18.

Staff Information Request No. 01.18. (Application page 18, Section 2.2.1, AFR Section 2.2.1.) Alternative technologies, including bifacial modules, are discussed in the application. Comment on the possible advantages or disadvantages of using bifacial modules, including changes to either efficiency or acreage requirements. Discuss the process that would be used to evaluate whether alternative technologies would be used, including discussion of alterations to project scope, time frame, and budget.

Bifacial modules have been shown to increase production by as much as 30% at any point in time. This results in a higher annual energy yield and thus improved project economics. There should be no material change in project footprint requirements between projects utilizing bifacial panels and monofacial panels.

Badger Hollow will take into account the costs and performance of each technology option as well as environmental and safety standards when making its final selection. This process has been included in the proposed project timeline and the final selection should not alter the project scope, time frame, or budget.

2.2.2. Panel Delivery Date.

The current construction schedule calls for panel delivery to begin in late 2019 or early 2020.

2.2.3. Total number of panels required for Project.

The Project will require approximately 1.1 million high-efficiency solar PV panels. Based on the module wattages under consideration the final count could range from 900 thousand to 1.2 million.

2.2.4. Technical Characteristics of Panels

2.2.4.1. Panel Dimensions

Dimensions for current panel options under consideration range from approximately 992 mm x 1956 mm (39 in. x 77 in., or 3.3 ft. x 6.4 ft) for a typical mono- or poly-crystalline module to FirstSolar's at 1232 mm x 2099 mm (49 in. x 83 in., or 4.0 ft. x 6.9 ft.) as shown on the data sheets in Appendix C. If solar panels are purchased from a company

other than the ones previously mentioned, the panel dimensions will fall within or close to the size range provided.

2.2.4.2. Panel Power Curve (provide actual data – solar resource and rated output needed to create the curve)

Appendix C (following the module data sheets) contains power curves for three of the modules under consideration. See pages 21-22 specifically.

2.2.5. Technical Characteristics of Panel Supports

2.2.5.1. Type of support and material used

The solar modules will be mounted to a horizontal single-axis tracking system. In this type of system, the panel arrays are arranged in north-south oriented rows. An electric drive motor rotates the horizontally mounted solar modules from east to west to follow the sun (on a single axis) throughout the day.

The Project is designed in 3 MW-AC power blocks, which are typically comprised of approximately 140 tracker rows of PV modules approximately 8 feet above grade. The solar arrays are mounted on a single-axis tracking system, which will entail the installation of mechanisms that track the daily movement of the sun. The tracker rows will follow the sun from approximately 60 degrees east to 60 degrees west through the course of the day. When the sun is directly overhead, the PV modules will be at a zero degree angle (level to the ground).

At zero degrees, the PV modules will be about eight feet off the ground, depending on final design. At 60 degrees (tilted to the highest position), the edge of the modules will be approximately 15 feet above ground. Multiple tracking system technologies are currently being evaluated, and include Array Technologies, Nextracker, and Soltec. A similar system from a different vendor may also be selected. Models from Nextracker and Soltec contain electric motors on each individual tracker row throughout the Project; ATI uses a linked row system with one motor per 28 racks or less.

To track the position of the sun, the tracking systems use either pre-defined algorithms or machine learning. Motors are controlled via ethernet and/or WiFi signals. The sound impact of all technologies being considered is negligible and is covered in more detail in Section 11.

Electricity produced from the arrays will be collected and routed to centrally located, skid-mounted power inverters and transformers that invert the DC power to AC power and transform it to collection system voltage of 34.5 kV.

Horizontal single-axis tracking systems are typically comprised of aluminum or galvanized or stainless steel.

2.2.5.2.Range of tracking angle

The tracking angles range between 104 degrees and 120 degrees for the tracker systems under consideration.

2.2.5.3.Minimum and maximum tracker height (at full tilt)

The highest point for the horizontal tracker would be achieved during the morning and evening hours when the trackers are tilted at their maximum angle and would be a maximum of 15 feet above the ground surface. The bottom edge of the modules will be a minimum of 18 inches above grade at maximum tilt, and up to eight feet above grade when tilted flat at mid-day. Primarily the variability in height is due to the panel configuration on the racking system. Some systems allow for panels in a 1-portrait configuration, meaning there is a single row of panels arranged in a portrait configuration relative to a viewer east or west of the row. In other words, the long axis of the panels would be perpendicular to the axis of the tracking system. With this option, the panels would be closer to four feet above grade when tilted flat at mid-day. Alternately, two-portrait racking systems are available that can hold two panels in portrait configuration with an axis that is perpendicular to the tracker. The two-portrait configuration requires taller piers and results in a taller overall system, but also provides for wider aisles. A final decision on the racking system will be made prior to construction.

2.2.5.4.Support dimensions and number of sections required

Based on the information provided in the Technical Data Sheets for the mounting systems under consideration, the tracker dimensions ranges from a width of 6.4 feet to 12.8 ft. The number of sections required are dependent upon the manufacturer and type of panels installed, and the location that they are being constructed. The tracking systems under consideration have different specifications and maximum capacities of solar panels that can be installed. Estimates of the number of sections that will be required can be provided after a manufacturer(s) has been selected.

Additional Information in Response to Commission Staff Information Request No. 01.19.

Staff Information Request No. 01.19. (Application page 19, Section 2.2.5 and Appendix C, AFR Section 2.2.5.) For ancillary panel equipment, including some of the solar tracking equipment, the application states that standard operating temperature is from -4° F to 131° F, but can extend down to -40° F with an "extended" temperature range accommodation. Explain how such equipment would be specified, purchased, and operated to ensure continued efficacy of the components in the occasionally extreme weather conditions that can happen in Wisconsin.

The operating temperature information specified is from page 57 of Appendix C of the CPCN Application regarding the Soltec SF Utility Solar Tracker. As noted in the CPCN Application, several different tracking technologies are currently being evaluated. During final design and selection of ancillary equipment such as trackers, extreme weather conditions specific to the site will be taken into account to ensure continued efficacy of the components.

In the case of extreme weather conditions, Badger Hollow has reviewed the closest weather station's climate history, as verified by the Solar America Board for Codes and Standards. Potential tracking technologies will be assessed in the context of other project attributes, such as resource forecast and expected operating profile. The final selection could assume an operating scenario where equipment can operate in the most extreme heat and cold, or potentially pause tracking operation until these conditions pass.

2.2.6. Scale drawings of panels including pad and transformer box.

Appendix C includes data sheets with dimensions for a range of modules and inverters that would be used on the Project. It should be noted that the exact dimensions and ratings of the equipment that will be available at the time of procurement could be different, but similar to the information contained in Appendix C.

Typical module dimensions are 3 to 4 feet wide by 6 to 7 feet tall. Typical inverter enclosures are 15-20 feet long by 6-7 feet wide by 7-8 feet tall. Typical pad mounted transformers that will be located on the inverter skids are approximately 10 feet wide and long, and approximately 8-10 feet tall. An example can be seen on the TMEIC and SMA Inverter skid datasheets in Appendix C.

Appendix D includes typical profile views of the trackers and inverter skid equipment.

2.3. Construction Equipment and Delivery Vehicles

Provide a description of the types of construction equipment needed to build the Project and the types of delivery vehicles that would be used to deliver equipment to the array area. For large equipment and vehicles include:

2.3.1. Types of construction equipment and delivery vehicles

Invenergy estimates that there will be between 25 and 35 trucks used daily for equipment delivery during construction. Light duty trucks will also be used on a daily basis for transportation of construction workers to and from the site. Typical construction equipment such as scrapers, bulldozers, dump trucks, watering trucks, motor graders, vibratory compactors, and backhoes will be used during construction. Specialty construction equipment that may be used during construction will include:

- Skid steer loader;
- Vibratory pile driver;
- Medium duty crane;
- All-terrain forklift;
- Concrete truck and boom truck;
- High reach bucket truck; and
- Truck-mounted auger or drill rig.

2.3.2. Gross vehicle weight (loaded and unloaded) for all vehicles using local roads
Other than delivery vehicles for the main step-up transformers in the Project substation, Badger Hollow believes all of the vehicles using local roads will be legal loads in terms of size and weight. If there becomes a need for a larger vehicle, Badger Hollow's construction contractor will work with state and local authorities to obtain the applicable oversize-overweight permits.

2.3.3. For vehicles used for panel/inverter/substation delivery (diagrams or drawings of vehicles are acceptable). Include:

As mentioned above, the solar equipment deliveries will use standard size and weight delivery vehicles. Expected delivery vehicles for the main substation transformers are 12-line 2 file power shift transmission (PST) (self-propelled) Goldhofer modular trailers with a gross vehicle weight of approximately 309,500 pounds.

2.3.3.1. Overall vehicle length

The expected maximum length of the vehicle is 70 feet.

2.3.3.2. Turning radius

Turn radius of the delivery vehicle is 52' front - 17' middle – 39'5" rear.

2.3.3.3. Minimum ground clearance

Minimum ground clearance is 6-inches, though if no overhead obstructions are present the deck can be raised and lowered to accommodate bumps and dips in the road surface.

2.3.3.4. Maximum slope tolerance

The maximum allowable slope is 7%.

2.3.5. Roads and Infrastructure–Estimate the potential impacts of construction and delivery vehicles on the local roads. Provide the following:

2.3.5.1. Describe methods to be used to handle heavy or large loads on local roads.

Solar projects do not require the large volume of concrete trucks, large mobile cranes, or extreme oversized vehicles that are common on wind projects. Typical construction and delivery vehicles such as dump trucks (e.g. for aggregate delivery), and flat bed and enclosed tractor-trailer for equipment and material deliveries will constitute the majority of Project traffic. A small number of oversized/overweight deliveries will likely be required for larger electrical equipment and transmission line structures.

2.3.5.2. Probable routes for delivery of heavy and oversized equipment and materials.

The main haul route for construction materials will be into the Project Area on USH 18 and STH 80. County and Township roads within the Project Area will be used to deliver equipment and materials to the Laydown Area and directly to construction sites. The heavy equipment for the substation would likely be delivered directly to the substation via USH 18, STH 80, Co B, and Drinkwater Road. Applicable permits will be obtained for the final route prior to delivery.

2.3.5.3.Potential for road damage and any compensation for such damage.

Badger Hollow has had preliminary conversations with the Iowa County Engineer and Zoning Officer to discuss a Joint Development Agreement and will negotiate in good faith with Iowa County and the Towns of Eden, Mifflin and Linden to reach appropriate arrangements regarding road use. Badger Hollow believes one of the fundamental components of such an agreement will be an objective standard of repair for public infrastructure, as well as adherence to local zoning and siting regulations in effect at the time of filing this application.

2.3.5.4.Probable locations where local roads would need to be modified, expanded, or reinforced in order to accommodate delivery of turbines, blades, or towers.

Badger Hollow has already been in communication with local road authorities to discuss coordination prior to construction to determine if any road improvements are needed to accommodate construction traffic.

2.3.5.5.Include an estimate of whether or not trees near or in road ROW might need to be removed.

It is not expected that trees in the road ROW would need to be removed to accommodate Project deliveries or construction.

2.3.5.6.Provide an estimate of likely locations where local electric distribution lines will need to be disconnected in order to allow passage of equipment and materials.

No disruption of existing distribution lines is anticipated to allow for passage of Project equipment or materials.

2.3.6. Construction Traffic - Anticipated traffic congestion and how congestion will be managed, minimized or mitigated. Include:

2.3.6.1.List of roads most likely to be affected by construction and materials delivery.

See Figure 6.6.1 for preliminary Project haul routes. A majority of the local roads in the Project Area will be used. Every town or county road that is planned for a solar array access road entrance will be affected by construction.

2.3.6.2.Duration of typical traffic disturbance and the time of day disturbances are most likely to occur.

Construction traffic in any given area will occur in a cycle of heavy hauling activities followed by much more numerous but lighter weight vehicles for personnel. The initial phase of heavy hauling will be to deliver earth-moving equipment and then aggregate for solar array access roads. After the access roads are installed, the steel posts will be delivered along with equipment and personnel for installation. Then, steel racks and personnel to install them, then solar modules and their associated installation personnel, then the electrical system and its installation personnel.

Heavy hauling activities can be done primarily during daylight hours and on weekdays, but the smaller vehicles for personnel arriving on-site may continue through later hours if needed to maintain the Project's construction schedule.

2.4. Other Project Facilities

2.4.1. Solar Array Foundations – Describe the type of foundation or foundations to be used. If more than one type of foundation may be needed describe each and identify under what circumstances each foundation type would be used. Include the following:

2.4.1.1. Dimensions, surface area and depth required for each foundation.

Per the preliminary geotechnical report (Appendix T), Badger Hollow expects to use galvanized steel, driven piles, with a minimum embedment depth of 8 feet. Typical driven pile foundations are W6x9 steel sections with 8 to 15 ft embedment and 4 to 8.5 ft of reveal height. If pile refusal is encountered due to shallow bedrock or other subsurface obstructions, alternate foundation installation techniques or designs such as cast-in-place, helical piles, or concrete ballast foundations (Appendix D) may be needed.

Additional Information in Response to Commission Staff Information Request No. 01.20.

Staff Information Request No. 01.20. (Application page 24, Section 2.4.1.1, AFR Section 2.4.1.1.) Verify that the driven pile foundations would have a reveal height of 4 to 85 feet.

In the above language, "85" has been changed to " 8.5".

2.4.1.2. Amount of soil excavated for each foundation type.

No soil excavation is required for the planned driven piles, nor would it be required if helical piles are used. If cast-in-place or ballast foundations are used, soil excavation would be required in those isolated locations.

2.4.1.3. Describe how excavated soils will be handled including disposal of excess soil.

If soil excavation is required, the excess soil will be thin-spread in a nearby location within the Project Area.

Additional Information in Response to Commission Staff Information Request No. 01.21.

Staff Information Request No. 01.21. (Application page 24, Section 2.4.1.3, AFR Section 2.4.1.3.) The application describes how excavated soils would be handled, including the disposal of excess soil. Verify that excess/excavated soil would only be spread with the landowner's permission and no subsoil would be spread on cropland or pasture.

Excess/excavated soil will only be spread within the project area in accordance with terms of the solar lease agreements with landowners. Spreading subsoil on cropland/pasture will be avoided to the maximum extent practical.

2.4.1.4. Materials to be used for the foundation. Include:

2.4.1.4.1. Approximate quantity and type of concrete required for typical foundation.

No concrete is needed for driven or helical piles. Generally, less than half of a cubic yard of concrete or flowable fill is needed per cast-in-place or ballast pile foundation.

2.4.1.4.2. Materials required for reinforcement.

Sacrificial steel or galvanization may be needed to reinforce design against corrosion.

2.4.1.4.3. Description of the tower mounting system

A steel bracket on top of pile is bolted to the racking superstructure.

2.4.1.5. Provide technical drawings of each foundation type to be used showing foundation dimensions.

Typical drawings of the foundation types under consideration are included in Appendix D. Exact dimensions, surface area, depth implications, and final quantity will be determined with further engineering designs.

2.4.2. Site Construction Area – Describe site construction area. Include location and dimensions for:

2.4.2.1. Crane Pads (inapplicable to Solar Projects)

2.4.2.2. Lay-down areas.

2.4.2.3. Parking area.

2.4.2.4. Provide a scale drawing showing the general construction setup for the site.

This section addresses the applicable requirements of Section 2.4.4 of the Application Filing Requirements, including all subsections, i.e., subsections 2.4.2.1 (inapplicable) through 2.4.2.4.

The Project construction contractor will develop an up to 50-acre temporary construction mobilization and laydown area across one or multiple sites within the Project boundary that would include temporary construction trailers with administrative offices, construction worker parking, temporary water service, and temporary construction power services, tool sheds and containers, as well as a laydown area for construction equipment and material delivery and storage.

Figure 4.1.1 depicts potential sites for the laydown areas. The expectation is to use leased areas which do not include array locations. To the extent any of the alternate locations are used for solar arrays, some of these areas may need to be moved. Appendix D includes a drawing depicting the general setup for these laydown areas.

Additional Information in Response to Commission Staff Information Request No. 01.22.

Staff Information Request No. 01.22. (Application page 24, Section 2.4.2.4, AFR Section 2.4.2.4.) Provide a scale drawing of an example array panel block construction site layout. The example provided in the application is only for an offsite laydown area. Explain whether the construction work area extend beyond the final block security fence.

See attached Appendix Y for a scaled drawing example power block configuration. Construction activities such as material laydown, temporary stockpiles, etc. will occur within the designated laydown areas, which may be beyond the boundary of the final array security fences. Erosion control BMPs may be installed outside the fence (in near proximity to the fence). All other construction activities would take place in the areas shown for perimeter fenced areas, "alternate array areas", and access road and collection corridors.

2.4.3. Access Roads

2.4.3.1. Provide the total number of miles required for access roads.

2.4.3.2. Describe materials to be used and methods for construction of access roads including road bed depth.

2.4.3.3. Specify the required width of access roads. Fully describe any differences between final road size and that required during construction. (e.g. if access roads would be used for temporary crane paths).

This section addresses the applicable requirements of Section 2.4.3 of the Application Filing Requirements, including all subsections, i.e., subsections 2.4.3.1. through 2.4.3.3.

Suitable access roads, typically gravel 12 to 20 feet wide, will be constructed within the Project boundary. A total of up to 56 miles of access roads are anticipated for the Project, predominantly within the array fence boundaries. Roads will be located primarily to provide access to power conversion equipment at the center of power blocks and around the Project perimeter to provide access to the solar equipment and accommodate ongoing maintenance of the Project components. Roads will not be constructed within every aisle. Roads will also provide access for emergency vehicles under emergency circumstances. As the final array configuration will be determined following PSC approval, the access road design and locations depicted in Appendix B are preliminary. Badger Hollow will incorporate the input from landowners and local road authorities in the final design considerations. No temporary roads or temporary widening of roads during construction is planned at this time.

Additional Information in Response to Commission Staff Information Request No. 01.23.

Staff Information Request No. 01.23. (Application page 25, Section 2.4.3, AFR Section 2.4.3.) Explain whether landowners have access to or use of access roads.

Access to the site is only for site personnel and approved contractors. Landowners will not have access to or use of access roads within the secured array areas.

2.4.3.4. Describe any site access control (i.e. fences or gates)

A barbed wire chain-link or wire fence will provide security around the perimeter of the facility. It is anticipated to be approximately 8 feet tall to minimize wildlife intrusion into the facility and comply with applicable electrical codes.

No upgrades or other changes to existing transportation systems will be necessary during construction or operations of the Project, except for driveway additions and modifications. All new access road construction will occur within the Project boundary. Badger Hollow will obtain all relevant permits from road authorities relating to access for the Project through public roads, as well as installation of temporary facilities that may be proposed to occupy portions of public road rights of way during the construction process. Badger Hollow will also obtain all relevant permits and/or authorizations from road authorities relating to any electric cables and/or feeder lines that may be placed in or across a public road right of way.

2.4.4. Crane Paths

No heavy duty or oversized cranes are used in solar facility construction. Therefore, no crane paths will be constructed separate from other general construction access roads.

2.4.5. General Construction Areas

2.4.5.1. Identify size and location of lay-down areas outside of those found at the turbine sites and any other areas used for material storage.

The general construction laydown areas are described in section 2.4.2, and shown on Figure 4.1.1. Racking materials, modules, cables and other materials would initially be stockpiled, and distributed in the field as construction sequencing progressed. This area would also host temporary construction offices and parking for personal and construction vehicles and equipment. An example of a laydown area configuration is included in Appendix D, page one.

2.4.5.2. Identify size and location of construction parking areas.

Construction parking will be contained within the construction laydown areas described above.

2.4.5.3. Describe the expected use of these areas after Project completion.

After construction is complete, the gravel surface would be removed, the soil would be de-compacted, and the site would either be seeded or immediately returned to agricultural use, depending upon the season.

2.4.5.4. Provide a list of all hazardous chemicals to be used on site during construction and operation (including liquid fuel).

The primary hazardous chemicals that will be present on site are fuel for vehicles and construction equipment, oil in the transformers at the Substation and inverter pads, and heating fuel for the O&M building. Smaller quantities of additional chemicals will also be used on site, including paints, lubricants, and cleaning products.

2.4.5.5. Discuss spill containment and cleanup measures including the Spill Prevention, Control, and Countermeasures (SPCC) and Risk Management planning for the chemicals proposed.

A Spill Prevention, Control, and Countermeasures (SPCC) Plan complying with all EPA requirements will be developed for both construction and operation of the facility. Secondary containment will be provided for fuel tanks and for the substation transformers. Spill kits will be available on site, and training, inspection protocols, and response procedures will be established in the SPCC Plan.

2.4.6. Transmission and Distribution Interconnection

2.4.6.1. Describe any transmission or distribution grid interconnection requirement.

Interconnection studies are ongoing, and final determinations on the Project's requirements for grid connection have not been determined. Internal Invenenergy analysis suggested the local electrical system could have adequate capacity for 300 MW of new generation at the Eden substation, and Badger Hollow is exploring a secondary route to the north of the Project, which would require a new substation to be built along the Eden-Wyoming Valley 138kV transmission line, or a potential relocation of the Eden substation to this new point.

Additional Information in Response to Commission Staff Information Request No. 01.25.

Staff Information Request No. 01.25. (Application page 27, Section 2.4.6.1, AFR Section 2.4.6.1.) The application mentions the possibility of either building a new substation along the Eden-Wyoming 138 kV transmission line, or relocating the existing Eden Substation. Comment on the project impacts that would occur for each of these possibilities, including changes to project scope, timeframe, or budget. Discuss the timing of when final design details would be known.

The project scope, timeframe or budget likely will not be materially impacted by the ultimate selection of either transmission system substation option. The final design details will be known upon completion of the MISO study process. Badger Hollow will provide additional information regarding necessary transmission facilities as it becomes available.

2.4.6.2. Describe all communications and agreements, official or otherwise, with the transmission or distribution owner.

Badger Hollow has requested interconnection to MISO, and as part of that process there has been discussion with the transmission owner to confirm the Point of Interconnection. Badger Hollow staff had a conference call with American Transmission Company (ATC) and MISO staff on February 5, 2018 to discuss other interconnection location possibilities such as the proposed Cardinal-Hickory Creek (CHC) project mid-point substation called Hill Valley. The same group plus a different, non-related interconnection customer had a follow-up discussion on March 13, 2018 to discuss the same topic. The Project has also participated in an Interconnection Study scoping call on March 19, 2018 organized by MISO and required by the interconnection process.

Badger Hollow is aware that the CHC transmission line is seeking a CPCN for a potential route along County Road B that would go through the Badger Hollow project area on a corridor where Badger Hollow has solar easements with several miles of frontage along County Road B. Placement of transmission towers in this area would have the potential for a very limited amount of shading on solar panels to the north and would have an insignificant effect on energy generation. Should this route be approved, CHC should coordinate with Badger Hollow to ensure pole placement will be outside of areas planned for use by Badger Hollow for access road entrances and collection routes. Construction management for both projects should communicate closely to maximize safety and efficiency if construction is to be occurring for both projects at the same time.

Additional Information in Response to Commission Staff Information Request No. 01.26.

Staff Information Request No. 01.26. (Application page 27, Section 2.4.6.2, AFR Section 2.4.6.2.) The application identifies the possibility that some project electrical infrastructure may need to coexist with the route of the proposed Cardinal-Hickory Creek transmission project. Discuss the steps that would be undertaken if both projects share the same easement location, as well as outreach to any possibly affected landowners with whom conversations may not have taken place.

Badger Hollow staff continue to have a dialog with Cardinal-Hickory Creek to be able to address more specific questions as they arise. More detailed engineering work can address any potential points of coexistence between the two projects. Both teams have local staff available to communicate with any possibly affected landowners. Badger Hollow believes it has already had conversations with every landowner that would be affected by a potential shared easement location with the Project and Cardinal-Hickory Creek.

2.4.6.3. For transmission interconnections, indicate where the Project is in the MISO Queue and provide copies of the latest draft or final MISO report for the Project interconnect. During the PSC review process applicant must continue to supply the latest reports from MISO.

The Project consists of two interconnection positions, J870 and J871. J870 is 200MW and J871 is 100MW. Both queue positions are in MISO Definitive Planning Phase (DDP)-2017-AUG-East (ATC) study cluster. DPP1 has been kicked off. At this time there are no studies available to be provided.

Additional Information in Response to Commission Staff Information Request No. 01.27.

Staff Information Request No. 01.27. (Application page 27, Section 2.4.6.3, AFR Section 2.4.6.3.) Provide more information about the MISO queue schedule, including expected completion dates for all studies and a signed generation interconnection agreement. Explain the changes to the project scope, timeframe, and budget if the interconnection agreement is approved for less than 300 MW.

According to the latest MISO schedule, published on 8/1/2018, the DPP-2017-AUG-EAST (ATC) study cluster that the Project is a part of will adhere to the following schedule:

DPP1 Completion:	11/8/2018
DPP2 Completion:	02/01/2019
DPP3 Completion:	06/17/2019
GIA Executed:	11/14/2019

<https://cdn.misoenergy.org/Definitive%20Planning%20Phase%20Schedule106547.pdf>

The project scope is yet to be determined as the DPP1 is not yet complete.

The interconnection scope is expected to be a typical substation expansion including a new breaker position. The final interconnection scope for each queue position will be identified pursuant to the completion of the individual queue studies and will be incorporated into the individual interconnection agreements.

Additional Information in Response to Commission Staff Information Request No. 01.24.

Staff Information Request No. 01.24. (Application page 27, Section 2.4.6, AFR Section 2.4.6.) Provide any additional information regarding necessary transmission interconnection facilities as it becomes available.

Badger Hollow will provide additional information regarding necessary transmission facilities as it becomes available.

2.4.7. Collector Circuits

2.4.7.1. Total number of miles of collector circuits required – separated by circuit type (overhead vs. underground).

Up to 55 miles of underground collection will be required for the Project. No overhead collection is proposed. Depending on the final design, approximately 15 collector circuits are expected to be needed to connect the solar arrays to the Project Collector Substation.

Additional Information in Response to Commission Staff Information Request No. 01.28.

Staff Information Request No. 01.28. (Application page 28, Section 2.4.7.1, AFR Section 2.4.7.1.) The application states that up to 55 miles of underground collector line and 15 collector circuits may be needed for the final design. Discuss whether significant changes to either of these quantities would occur if power blocks larger or smaller than 3 MW are used.

The number of collector circuits and the total length of collector lines would not significantly change if power blocks larger than 3 MW are used because AC power

output from each power block would be combined with the power from other power blocks into one of the 15 collector circuits. The only change would be a different number of points of connection between the different number of power blocks as they join the 15 collector circuits, but the total length of collector lines generally would be the same.

2.4.7.2. Specify the collector circuit voltage to be used.

The collection system will operate at a nominal voltage of 34.5 kV.

2.4.7.3. Transformer type, location, and physical size of transformer pad at each site.

Pad mounted transformers that will be located on the inverter skids will be 3-phase, 3500 kVA, 34.5 kV high side, and be air cooled. The transformers are approximately 10 feet wide and long, and 8-10 feet tall. Examples of similar pad-mounted transformers on inverter skids are included in the SMA and TMEIC inverter skid datasheets in Appendix C.

2.4.7.4. Underground Collector Circuits

The 34.5 kV medium voltage underground collector circuits from the substation low side bus will be daisy chained to up to approximately 7 inverter stations (depending on final inverter size). Properly sized surge arrestors will be placed at the end of each medium voltage circuit.

2.4.7.4.1. Conductor to be used

Single phase 35 kV, TR-XLPE 100% insulation level, concentric neutral cable with an MV90 Rating will be used. The conductor size will vary from 1/0 AWG to 1250 kCMIL depending on the loading and site conditions. A bare #1 AWG trench ground is also run in the medium voltage trench along with fiber optical cable in innerduct.

2.4.7.4.2. Burial depth and width of trench

The medium voltage cables will be direct buried in native soil arranged in a triangular configuration with 48" of cover in a 12" wide trench. Parallel trenches will be separated by 15' to maintain cable ampacity.

Additional Information in Response to Commission Staff Information Request No. 01.29.

Staff Information Request No. 01.29. (Application page 28, AFR Section 2.4.7.4.2.)

Differentiate the installation type (i.e. trenching versus directional boring) for the collector circuits in Figures 6.3.1, 6.3.2, and 6.3.3.

Because all wetland and waterway crossings for cable infrastructure will be bored, no differentiation between trenched crossings and directional boring is possible on the Figures. Boring Pit locations have been added to the respective figures.

Outside of wetland areas, collection lines likely will be installed with a trenching machine, though a plow is a possibility as well and may be used in this project area because there is very limited drain tile. Trenchers are often used for collection system installation in areas with extensive drain tile because the trenching process allows for

visual observation of damaged tile lines that will require repair. In this area, with the lack of drain tile, a plow may be an acceptable installation tool.

These figures have been updated to include the Desktop Delineation reference labels from the initial Table 6.0. Table 6.0 has also been updated to include the DNR mapped Waterways with the corresponding WBIC ID and size. These updated items are attached at Appendix B.

2.4.7.4.3. Describe trench and how lines would be laid (direct buried, conduit etc.)

Provide scale drawing of underground circuit.

Medium voltage cables will be direct buried as shown in Appendix D.

2.4.8. Construction Site Lighting

2.4.8.1. Describe the site lighting plan during Project construction.

The Project does not plan on having any permanent lighting on site during construction. During potential extensions of working hours, temporary lighting may be used in the construction and laydown areas.

2.4.8.2. Provide copies of any local ordinances relating to lighting that could apply.

Local ordinances, including the Iowa County Zoning Ordinance are provided in Appendix I, but it is silent as to lighting.

2.5. Substation

If the Project includes the construction of a substation or modifications to an existing substation, provide the following information:

2.5.1. A complete electrical description of required substation facilities including a list of transformers, busses, and any interconnection facilities required.

The preliminary substation design includes two 105/140/175MVA transformers that will transform voltage from the 34.5kV collection system to the 138kV interconnection system. A drawing of a similar transformer is included in Appendix C. Each transformer will have its own 138kV circuit breaker tied to a common 138kV bus before exiting the substation with an overhead 138kV transmission line. There will be two independent 34.5kV collection system buses with individual 34.5kV feeder breakers for each collection feeder. All breakers will be supplemented with disconnect switches according to industry practices. A control enclosure will be installed on-site that will house the protection, communication, and SCADA equipment necessary to safely operate the collection substation. The facility will be fenced-in and protected according to the National Electric Safety Code.

2.5.2. Indicate the size (in acres) of the land purchase required for the new substation or substation expansion.

The land purchased for combined use of the O&M Building and Project substation is approximately 10 acres.

2.5.3. Indicate the actual size of the substation or substation addition in square feet, the dimensions of the proposed substation facilities, and the orientation of the substation within the purchase parcel.

The preliminary substation design assumes the footprint will be approximately 250 x 200 ft. The parcel being purchased is presently a small dairy farm. The owner desires to retire and retain ownership of the majority of land, but the family is willing to sell up to 10 acres for the permanent O&M Building and Project substation. The dairy is located at 2638 Drinkwater Rd down a long, approximately ¼ mile driveway. The secluded setting, far from a sparsely traveled road minimizes aesthetic impact or sound impacts from the substation. The proposed layout on the parcel is depicted on Figure 4.1.4. The substation likely will be in an area to the northwest of the dairy barn in a flat area of the field. A small grove of trees to the east will further obscure the substation from the road.

Additional Information in Response to Commission Staff Information Request No. 01.30.

Staff Information Request No. 01.30. (Application page 29, Section 2.5.3, AFR Section 2.5.3.) Provide the location in the application of Figure 4.2.11.

Section 2.5.3 of the CPCN application states in relevant part:

"The proposed layout on the parcel is depicted on Figure 4.2.11."

The correct location of the layout of the substation in the CPCN Application should read:
"The proposed layout on the parcel is depicted on Figure 4.1.4."

This correction is reflected in the above language.

Additional Information in Response to Commission Staff Information Request No. 01.31.

Staff Information Request No. 01.31. (Application page 29, Section 2.5.3, AFR Section 2.5.3.) The application identifies that a substation would likely be placed on the site of a dairy farm. Discuss the stray voltage protections that would be employed, or justify why such protections would not be required (e.g. cessation of dairy farming activities at the dairy farm).

The substation and O&M building will be located on land currently occupied by an operating dairy farm. Prior to construction, the land will be purchased and dairy farming activities will cease.

2.5.4. Identify current land ownership and whether applicant has control of property or whether or not an option to buy has been signed.

The land is currently privately owned, and Badger Hollow has an option to purchase up to 10 acres of the property. The remainder of the property and an adjacent field totaling approximately 286 acres are subject to a solar lease and easement agreement with Badger Hollow.

2.5.5. Describe substation construction procedures (in sequence as they will occur) including erosion control practices (see Section 3.1).

A typical construction sequence for a substation involves, in order, site grading work, below grade foundation installation, by above grade physical construction of buswork and installation of major electrical equipment, wiring and completion of all terminations, followed by testing, commissioning, and ultimately energization. A site-specific construction specification and schedule will be developed but is not yet available. All contractors will be required to follow the Storm Water Pollution Prevention Plan as well as adhere to any site specific environmental requirements including erosion and dust control.

2.6. Operations and Maintenance Building

2.6.1. Describe the purpose and use of the proposed O&M building

The O&M area would accommodate a permanent O&M building, parking area, and other associated facilities such as drinking water well, aboveground water storage tanks, septic system, security gate, lighting, signage, and flagpoles. The permanent O&M building would house administrative, operation, and maintenance equipment and personnel.

Additional Information in Response to Commission Staff Information Request No. 01.32.

Staff Information Request No. 01.32. (Application page 30, Section 2.6.1, AFR Section 2.6.1.) Describe the aboveground water storage tanks and the use of the water that would be stored onsite.

Aboveground water storage tanks will be required only if there is no direct water service at the O&M building, which is currently not expected. Storage tanks would hold non-potable water for use at the O&M building.

2.6.2. Number of full-time employees that would be working at the facility.

The Project expects the facility will house 5 permanent employees and have additional office space for traveling engineers.

2.6.3. Size of property needed (provide physical dimensions and acres).

Badger Hollow expects that the 10-acre purchase described in section 2.5.3, above, will be adequate for site access, substation, O&M, parking and storage areas. The Project's O&M building is expected to require 4,000-5,000 square feet to be able to offer the following:

- 2700 sq ft. warehouse space
- three offices including one shared workspace for up to 7 technicians,
- a control center/library,
- a bathroom with shower, and
- a breakroom/kitchen.

2.6.4. *Building and Building Footprint*

2.6.4.1. *Provide a drawing or diagram of the O&M building with dimensions including square feet.*

2.6.4.2. *Describe the type of building to be constructed (metal, frame, etc.)*

A rendering of the preliminary O&M building is shown in Figure 4.1.5.1 and the layout of the O&M building and substation vicinity is also shown on Figure 4.1.4. The existing dairy has several structures that are in decent condition and may be suitable for renovation and reuse into the O&M building. Additional diligence will be performed on these structures, particularly the wood dairy barn with hayloft and the large steel machine shed. However, safely and economically fitting the requirements of the O&M building may mean that an entirely new structure is most viable. Badger Hollow is continuing to evaluate the options. The design and construction of this building would be consistent with applicable Wisconsin State Building Code and Iowa County Building Standards. As evidenced in Appendix J, these structures are not listed by the Wisconsin Historical Society as historical buildings.

Additional Information in Response to Commission Staff Information Request No. 01.33.

Staff Information Request No. 01.33. (Application page 30, Section 2.6.4.2, AFR Section 2.6.4.2.) Provide the location in the application of Figure 4.2.13.

Section 2.6.4.2 of the original CPCN Application provided in relevant part: "A rendering of the preliminary O&M building is shown in Figure 4.2.13."

This sentence should have read: "A rendering of the preliminary O&M building is shown in Figure 4.1.5.1 and the layout of the O&M building and substation vicinity is also shown on Figure 4.1.4."

This correction is reflected in the above language.

2.6.5. *Lighting and Security Plan for O&M Property*

2.6.5.1. *Describe how the building property will be lit and how the lighting plan minimizes disturbance to nearby residences.*

The O&M area will include down-shielded lighting for security purposes. These lights will be turned on either by a local switch, as needed, or by motion sensors that will be triggered by movement.

2.6.5.2. Describe any security plans for the property (fences etc.).

A perimeter fence that is 6 to 7-feet-high with an additional foot of barbed wire above will enclose the O&M area.

2.6.6. Describe any other facilities needed, including:

2.6.6.1. Parking lots.

The O&M would have an adjacent parking area of approximately ten parking spots to anticipate a maximum load of five permanent employees' vehicles and five visitors' vehicles.

2.6.6.2. Sheds or storage buildings.

There are multiple structures on the property now that, if proven to be in adequate condition, may be retained to provide additional covered storage instead of being razed. The approximately 2,700 sq ft of warehouse space in the O&M building is all that is thought to be needed, so the Project might raze all the structures if they are not in suitable condition or the Project otherwise determines them unnecessary. Existing grain bins and concrete silos will be removed.

2.6.6.3. Supplies of water.

The dairy is presently served by a well. Badger Hollow will test the water quality and flowrate and endeavor to continue to use the existing well. If found unsuitable, the Project will work with applicable local regulatory authorities to drill a new well.

2.6.6.4. Sewer requirements.

The farmhouse north of the dairy barn is presently served by a septic system. Badger Hollow will test the performance and condition of the system and endeavor to continue to use the system. If found unsuitable, the Project will work with applicable local regulatory authorities to install a new septic system.

2.7. Transmission Line

A 138kV transmission generation tie line will be constructed from the dead-end structure of the new Project collection substation to the point of interconnection. Transmission line engineering has not been completed but the right of way width is anticipated to fit within 100ft. Structure types, spans, and configuration are not yet finalized but expected to be steel or wood monopole tangent structures with steel dead-ends. All transmission facilities will be built in compliance with the National Electric Safety Code. A separate CPCN application will be filed for the Project transmission generation tie line.

2.8. Battery Storage

The Project may also include a large-scale Battery Energy Storage System (BESS). The battery storage facility would be integrated with the solar facility and would not generate energy, but store production from solar panels and release it to the grid when needed. The BESS would complement the Project by providing some or all of the following functions: frequency regulation, balancing variations in solar production, energy shifting, and digital

peaking and/or transmission and distribution deferral. Different power outputs and energy capacities will offer different performance capabilities, but a final configuration has not been determined. A representative system size could have a power output of 60 MW and storage capability of 60-240 MW-hrs.

Project facilities would include commercial-scale lithium-ion (or similar technology) batteries, inverters, transformers, and electrical interconnection facilities. The BESS would interconnect via underground 34.5 kV lines or an overhead 138 kV transmission line to the solar facility's collector substation.

The BESS would be located on the same parcel as the O&M building and project substation. A steel building approximately 300' long and 100' wide would house the batteries. Next to that and likely in between the battery building and the project substation would be a gravel area approximately 300' long and 100' wide for the battery system's inverters and pad mounted transformers. The inverters would be connected to the pad-mount transformers, which would then connect to switchgear, and then connect to a common bus which will connect directly to the project substation. Structures would be mounted on concrete slab or pier foundations. For safety and security, the same fencing surrounding the solar arrays would be installed around the battery facility.

Additional Information in Response to Commission Staff Information Request No. 01.2.

Staff Information Request No. 01.2. (Application page 1, Section 1.0 and 2.8, AFR Sections 1.0, 2.4, and 2.5.) On-site storage batteries are mentioned as part of a possible project scope. Explain what criteria would be used to assess whether storage would be included and how such an addition would affect the 3,500 acres of land intended to be used. Also, explain how batteries would affect the electrical design of the site and MISO interconnection process, if batteries would be involved. Clearly establish whether the inclusion of batteries would necessitate more substantive electrical equipment, including underground collectors, transformers, or substations. Identify what the MISO interconnection queue number is for the battery part of the project, if the study process has begun.

The decision process to include battery storage will include analysis of the following criteria: the capital and operating costs of the systems, regulatory and permitting considerations, the wholesale electricity market conditions, prices for energy, capacity, and ancillary services and MISO tariff provisions for the utilization of battery energy storage systems (BESS).

There would be no additional land required to site a BESS beyond the current 3,500 acre site. The effect on this land would be the construction of an additional large building and additional outdoor electrical equipment. As an example of the size of a storage system considered for this project, 240 MW-hrs of batteries with associated inverters and transformers will fit in approximately 3 acres of land, and, depending on final survey engineering and regulatory considerations, could fit within the designated 10 acre O&M and project substation area.

Inclusion of batteries will include electrical equipment. As described in the preceding paragraph, one design scenario for a BESS would be a centralized BESS adjacent to the project substation. In this scenario, an up to 100 ft x 300 ft building would contain the batteries and an adjacent area of equal size would be utilized for a new set of PCSs (inverters and transformers) for the batteries, which would tie into the substation via an underground collection system leading to feeder breakers. See, e.g., Appendix W. Badger Hollow's intention would be to work with MISO and ATC through the study process to justify why the BESS should be integrated into the same main transformer and gen tie line and not require its own equipment.

An alternative design scenario is that the batteries could be distributed throughout the site at the location of each PCS for the solar generating equipment and thus have no impact on the substation design. This decision will be a factor of the size of the BESS and further analysis of the operating costs of a BESS distributed throughout the site compared to a centralized system and capital cost differences between the two, as well as regulatory considerations including the MISO study process.

The impact to the larger MISO grid of the integration of a BESS at Badger Hollow will be positive, as the storage system can act as an "electrical suspension" system for the grid to smooth out abrupt ups and downs in solar production that can occur on partly cloudy days. The system can furnish other grid services such as frequency regulation, emergency backup services, and output scheduling to potentially shift some afternoon production to later in the day if needed to correspond with peak demands.

The potential storage aspect of Badger Hollow is being considered as a value-add. With storage, the project can deliver predictable power to over 99% of all hourly intervals, making this renewable energy project dispatchable. Integrating storage at the site would require a separate queue position that is under consideration for filing at the next MISO queue entry date of 1/22/19.

Additional Information in Response to Commission Staff Information Request No. 01.34.

Staff Information Request No. 01.34. (Application page 32, Section 2.8.) Provide a list of chemicals that would be used in association with the battery energy storage system.

The chemicals that would be used in association with the battery storage system are dependent on the batteries procured. Utility-scale battery storage modules are typically Lithium Iron Phosphate. Invenergy reviews cost and customer support when procuring modules, and is not tied to one type. For reference, attached at Appendix AA is a material safety data sheet (MSDS) for Lithium Iron Phosphate modules.

The cooling design could potentially utilize glycol but forced air will more likely be used. Refrigerant is not flammable at normal operating conditions. Typically, a refrigerant can become toxic at flame temperatures because it decomposes. However, the fire

suppression system prompts workers through a fire alarm control panel to exit the enclosure when heat or smoke are present, reducing risk of exposure. The presence of the fire suppression system utilizing FM200 agent extinguishes class A and B fires caused by burning plastic, for example. The fire safeties in the storage system shut down the power to system, reducing fire risk.

Inherent in any storage system are safety parameters that ensure safe operation. For example, the system will shut down if a single cell voltage is too high, or the state of charge is too low. These safety parameters protect the system from any condition that could compromise thermal stability.

Additional Information in Response to Commission Staff Information Request No. 01.35.

Staff Information Request No. 01.35. (Application page 32, Section 2.8.) Describe the change in fire risk for the project resulting from the addition of the battery energy storage system.

If a battery storage system is added to the project, the batteries will be housed in a building or in steel containers. The storage building or containers will have a self-sufficient fire protection system that will contain and extinguish fires. The typical fire suppression agent is FM200. It is part of regular maintenance to monitor and refill/replace the suppression agent and other parts of the fire suppression system. With this fire suppression system, the fire risk for the project will not appreciably change due to the addition of the battery energy storage system.

3.0 CONSTRUCTION SEQUENCE AND WORKFORCE

3.1. Construction Sequence

*3.1.1. Provide the construction schedule for the proposed Project Include a timeline showing construction activities from beginning of construction to in-service. Identify all **critical path** items.*

3.1.2. Provide a description of the staging and construction sequence required for building the proposed Project at a typical site. Include the delivery of materials.

3.1.3. Estimate of time required to complete construction at a typical photovoltaic site.

This section addresses the applicable requirements of Section 3.1 of the Application Filing Requirements, including all subsections, i.e., 3.1.1., 3.1.2., and 3.1.3.

Construction will begin after the necessary permits are received and the electrical interconnection process is finalized. Project construction will begin with workforce mobilization and the initial site preparation work including grading, vegetation removal, and any necessary tree removal. Localized site grading is expected to be required over smooth areas of rolling terrain within the array to accommodate the single-axis trackers. Some grading will be required for the substation and O&M facility foundations, but access roads will be constructed at grade when possible.

At this time, general site improvements will be made such as access improvements and preparation of the staging/laydown area. The temporary staging/laydown areas will be approximately 50 acres and located at various locations within the Project boundary. The staging/laydown areas will be used for storage of construction materials and shipped equipment containers, receiving construction deliveries, and temporary parking for Project related vehicles. Temporary construction offices will also be located onsite during construction.

The solar energy system (solar arrays and collection and distribution systems) will be installed next along with access roads within the arrays. The solar facility will be constructed in blocks, and multiple blocks will be constructed simultaneously. The Project may be constructed in phases. For example, with an initial phase of 150 MW starting as early as summer 2019 and being completed by the end of 2020. Badger Hollow would prefer to construct continuously up to a maximum of the end of 2023. Electrical testing and equipment inspections will be conducted prior to Commercial Operations of the Project. As portions of the Project near completion, temporary staging and laydown areas will be vacated and disturbed areas will be reseeded and re-vegetated consistent with a Project revegetation and restoration plan. Once installation is complete, the primary staging area will be reduced in size and the O&M facility and associated permanent infrastructure (storage, lighting, etc.) will be constructed. All temporary restroom facilities will be removed.

Appendix H includes a preliminary Project schedule for the construction process.

After construction, temporarily disturbed areas will be restored. The Site will be graded to natural contours where possible and prepared for final seeding. Once construction is complete, the permanent access roads will be dressed as necessary to ensure their long-term function. Erosion control methods during and after construction will depend on the contours of the land, as well as requirements of relevant permits. Badger Hollow anticipates that the post-construction clean-up and site restoration activities will last approximately two to four weeks.

Additional Information in Response to Commission Staff Information Request No. 01.36.

Staff Information Request No. 01.36. (Application page 33, Section 3.1.1 and Appendix H, AFR Section 3.1.1.) The schedule provided does not appear to incorporate critical path items, nor does it describe other simultaneous processes (e.g. major construction activities for the transmission tie-line) to provide a comprehensive picture of the entire project as planned. Discrepancies also appear between phase 1 and phase 2, both nominally 150 MW, including significant differences between procurement times (490 days, as compared to 855 days) and construction (945 days, as compared to 1,093 days). Explain the reason for these large differences and incorporate them into the schedule. Explain, as best as is known, how the timing of the transmission tie-in line construction would fit with the construction of the generation phases. Identify all critical path items in the construction schedule.

An updated construction schedule has been included at Appendix H with additional potential critical path items. As stated in the CPCN Application, the latest Phase 2 would reach commercial operation is 2023, which is the scenario reflected in the attached schedule. The discrepancy in timing between the two phases would most likely not be driven by construction, but rather commercial off-take discussions. If a customer is identified for the additional 150MW prior to construction start of Phase 1, the Phase 2 schedule would at a maximum be as long as Phase 1, but likely shorter.

Additional Information in Response to Commission Staff Information Request No. 01.37.

Staff Information Request No. 01.37. (Application page 33, Section 3.1.2, AFR Section 3.1.2.) Describe how staging and laydown areas within cropland or pasture would be restored. Discuss top soil restoration or replacement, methods to deal with compaction, and the depth of de-compaction. If pre-construction crop yields are not restored, describe how compensation would be determined.

Aggregate surfaces and foundations will be removed to a depth where clean aggregate without soil mixing can be retrieved. This aggregate will be applied throughout the site on access roads as a final, top layer and in the O&M area. If there is excess, it will be stockpiled in place or elsewhere for eventual use for site maintenance. The bottom layer of aggregate that has significant soil mixing will be sold or removed. The subsoil then will be de-compacted. Windrowed topsoil will be re-distributed throughout the site and de-compacted again as needed. A landowner hosting a staging or laydown area will be compensated for the effects of lingering compaction in these areas.

Additional Information in Response to Commission Staff Information Request No. 01.38.

Staff Information Request No. 01.38. (Application page 33, Section 3.1, AFR Section 3.1.3.) Provide an estimate of the time required to complete construction at any particular solar array block.

The solar array blocks will be constructed on a rolling basis with simultaneous activities occurring in multiple blocks. If a single solar array block was constructed independently, in its entirety, it would require an estimated construction duration of 12-16 weeks.

3.2. Workforce

3.2.1. Provide information on the workforce size and skills required for plant construction and operation.

The Project workforce will consist of craftworkers and electricians, along with onsite management personnel. The Project's contractor may use a traveling workforce for items that are self-performed. During peak construction periods, 500 workers are anticipated.

3.2.2. *Estimate how much of the expected workforce will come from local sources.*

The target local, meaning Iowa County, labor workforce for the Projects is 25%. As the SER Economic Impact and Land Use Analysis identifies, there are a limited number of employees in the construction segment in Iowa County.

4.0 PROJECT MAPS, AERIAL PHOTOGRAPHY, PHOTO SIMULATIONS, AND GIS SHAPEFILES

The required maps are included in Appendix B.

4.1. Project Area Maps

4.1.1. General Project Area Map

Additional Information in Response to Commission Staff Information Request No. 01.40.

Staff Information Request No. 01.40. (Application page 34, Section 4.1.1 and Appendix B, AFR Section 4.1.6.1.) Replace NHD Flowline and NHD Waterbody with DNR mapped waterways and flowlines.

The information requested is included in (i) the updated relevant maps found on Figures 6.3.1, 6.3.2, and 6.3.3., attached at Appendix B and (ii) the updated relevant maps found on Figures 4.1.1, 4.1.7.3, attached at Appendix B, and the addition of Figure WFC.1, attached at Appendix BB.

4.1.2. Detailed Project Area Map

4.1.3. Topographic Maps

4.1.4. Substation

Additional Information in Response to Commission Staff Information Request No. 01.39.

Staff Information Request No. 01.39. (Application page 34, Section 4.1.4 and Appendix B, AFR Section 4.1.6.3.) Engineering diagram(s) for the substation and associated equipment do not appear to have been submitted. Provide the diagram(s) for the intended design.

The diagrams for the intended design are found at Figure 4.1.4 of the CPCN application. This figure has been revised to show more detail of the substation area and equipment, and is attached at Appendix B.

Additional Information in Response to Commission Staff Information Request No. 01.41.

Staff Information Request No. 01.41. (Application page 34, Section 4.1.4 and Appendix B, AFR Section 4.1.6.3.) Include all construction access areas on the maps.

All referenced maps have been updated and include all construction access areas. These items include (i) the updated relevant maps found on Figures 4.1.1 and 4.1.7.3 and attached at Appendix B, and (ii) the updated relevant maps found on Figures 4.1.2, 4.1.3, 4.1.6.1, 4.1.6.2, 4.1.6.3, 4.1.6.4, 4.1.6.5, 4.1.6.6, 4.1.7.1, and 6.6.1. and attached at Appendix B, and Figure 5.9.2, attached at Appendix K.

Additional Information in Response to Commission Staff Information Request No. 01.42.

Staff Information Request No. 01.42. (Application page 34, Section 4.1.4 and Appendix B, AFR Section 4.1.6.3.) Primary and alternative panel sites are not represented within the project boundary for the airport map. Include this information on an updated map, or justify why it should be excluded.

The requested information is included in the updated map in Figure 4.1.7.3, attached at Appendix B.

4.1.5. O&M Building

The O&M Building site is included in Figure 4.1.4 along with the substation. Rendering of the building is included in Figure 4.1.5.

4.1.6. Natural Resources and Land Use/Ownership Maps

4.1.6.1. Wetland maps.

4.1.6.2. Land Ownership Maps

4.1.6.3. Public Lands

4.1.6.4. Land Cover

4.1.6.5. Flood Insurance Rate Maps

4.1.6.6. Soil Survey Maps

4.1.6.7. Bedrock Maps

4.1.7. Community Maps

4.1.7.1. Zoning Maps

4.1.7.2. Sensitive Sites

Data for Sensitive Sites are represented in Figure 4.1.2

4.1.7.3. Airports

4.1.8. Communication Infrastructure

This section is understood to not be required for solar projects, however Badger Hollow has performed communication studies (Appendix O) that include relevant maps.

4.2. GIS shapefiles

A list of provided GIS shapefiles is included in Appendix V as listed below. All digital files are provided on a disk to the PSC.

- 4.2.1. *Project Area Boundary*
- 4.2.2. *Proposed sites identified by number*
- 4.2.3. *Alternate sites identified by number*
- 4.2.4. *Access roads for proposed site (include road width)*
- 4.2.5. *Access roads for alternate sites (include road width)*
- 4.2.6. *Crane paths required for proposed and alternate turbine sites (include path width).*

This information is not required for solar projects.

- 4.2.7. *Underground collector circuits (include number of conductors and voltage)*
- 4.2.8. *Overhead collector circuits (include voltage)*

No overhead collection is proposed.

- 4.2.9. *Electric distribution lines*

- 4.2.9.1. *All electric distribution lines within the entire Project Area (include voltage of each line and phases present (A, B, and or C),*

Voltage and phase of existing distribution is currently unknown. Line locations have been provided based on aerial photos.

- 4.2.9.2. *All electric distribution lines within one mile of the Project boundary area (include voltage of each line and phases present (A, B, and or C).*

Voltage and phases of existing distribution is currently unknown. Line locations have been provided based on aerial photos.

- 4.2.10. *Transmission lines within the Project Area identified by voltage.*

- 4.2.11. *New Substation - provide shapefiles showing:*

- 4.2.11.1. *Perimeter of entire parcel acquired or to be acquired,*
 - 4.2.11.2. *Perimeter of substation,*
 - 4.2.11.3. *Access road,*
 - 4.2.11.4. *Other facilities such as a retention pond or storm water control,*
 - 4.2.11.5. *All collector circuits entering the substation,*
 - 4.2.11.6. *Transmission interconnect.*

- 4.2.12. *Expansion of an Existing Substation*

The Project will likely require an expansion of the Eden substation and that work will be addressed in the separate CPCN application for the transmission generation tie line. If Eden substation interconnection is determined to be nonviable, the Project will construct a new substation and interconnect to the transmission grid at line voltage.

4.2.13. O & M Building

- 4.2.13.1. Perimeter of property acquired,*
- 4.2.13.2. Perimeter of building,*
- 4.2.13.3. Location and perimeter of other buildings,*
- 4.2.13.4. Location and perimeter of parking lot,*
- 4.2.13.5. Location of access road.*

4.2.14. Wetlands in the Project Area

- 4.2.14.1. WWI Wetlands,*
- 4.2.14.2. Delineated wetlands. (See Section 6.2.1)*

4.2.15. Land owners/buildings

- 4.2.15.1. Residences on all participating parcels,*
- 4.2.15.2. Non-participating residences inside the Project boundary,*
- 4.2.15.3. Land ownership and parcels within the Project Area,*
- 4.2.15.4. Land ownership and parcels within 1 mile of the Project Area boundary,*
- 4.2.15.5. Confined animal operations - provide shapefiles showing.*
 - ☐ *The locations of any confined farm animals within the Project Area,*
 - ☐ *All confined animals operations within one mile of the Project Area boundary,*
 - ☐ *For each confined animal shapefile provide attribute data that identifies the type of animal, the number of confined animals, and the name of the land owner,*

No DNR-permitted Confined Animal Feeding Operations (more than 1,000 animals) are located within one mile of the Project Area. Badger Hollow has attempted to map the locations of smaller confined animal operations based on publicly available data. Specific types and numbers of animals are not known; however, cattle, sheep, and horses are common in the area.

Additional Information in Response to Commission Staff Information Request No. 01.43.

Staff Information Request No. 01.43. (Application page 36, Section 4.2.15.5, AFR Section 4.2.15.5.) For each confined animal GIS shapefile, provide attribute data that identifies the type of animal, the number of confined animals, and the name of the land owner.

The information requested is not publicly available. In the shapefiles provided, aerial maps and conversations with landowners were used to identify the locations. The types of confined animals identified include dairy cows, beef cattle, calves, and horses. Updated shapefiles will be provided to the Commission staff with all available additional information. The number of confined animals is identified where information was provided by the owner and is estimated where owner-provided information is not available.

4.2.16. All public lands within the Project boundary and public lands within 2 miles of the Project boundary.

4.2.17. All public airport runways within 10 miles of the Project boundary. Show runway orientation and length

4.2.18. All private airports and landing strips inside and within two miles of the proposed Project boundary. Show runway orientation and length.

4.2.19. Land Cover/Vegetative Communities (Do Not Use Obsolete DNR Land Cover data.) See section 5.3.

4.2.20. Provide a GIS shapefile showing the locations of properties enrolled in the Conservation Reserve Program.

The location of two properties in the Conservation Reserve Program (CRP) are included as provided by the Farm Service Agency. Badger Hollow is in the process of obtaining data for a third piece of leased land that is enrolled in CRP.

4.2.21. FEMA flood plains within the Project Area.

4.2.22. Aerial Photos (no older than three years) of Project Area and surrounding landscape (10 mile radius of the Project Area).

4.3. Topography

Topography - Raster files of topographic features within the Project Area and surrounding landscape (10 mile radius of the Project Area).

The package of electronic files provided for Section 4.2 also includes topography within a 10-mile radius.

4.4. Photo Simulations

Photo simulations for six locations around the Project Area are included in Appendix E. Photo locations were selected to represent areas frequented by the public, and include the edges of the nearby villages, well-traveled highways, and a school within the Project boundary, and were reviewed with PSC staff. The specific vantage point for each photo was selected for good visibility of the proposed Project.

Photos were taken at each location using a digital camera set to an effective focal length of 50mm to best reflect the experience of a person standing at the photo location. A model of the existing topography and proposed infrastructure was then used to generate renderings simulating the view after construction of the Project. A map of the photo locations, and both the raw images (existing conditions) and rendering of the proposed condition are included in Appendix E. High-resolution raster image files have been provided to the PSC on a disk.

5.0 NATURAL AND COMMUNITY RESOURCES, DESCRIPTION AND POTENTIAL IMPACTS

5.1. Site Geology

5.1.1. *Describe the geology of the Project Area.*

The Wisconsin Geological and Natural History Survey (WGNHS) Bedrock Geologic Map of Wisconsin³ maps the bedrock of the entire Project Area as the Sinnipee Group, which primarily consists of Ordovician-aged dolomite with limestone and shale. The Ancell Group, primarily sandstone with minor limestone, shale, and conglomerate, is also mapped nearby. Based on a WGNHS Depth to Bedrock Map of Iowa County, Wisconsin⁴ the expected depth to bedrock at the Project site (and most of Iowa County) is 0 to 20 feet below ground surface (ft bgs).

According to the Natural Resources Conservation Service⁵ the soil in the Project Area is predominately Tama silt loam (48% of site) and Dodgeville silt loam (36%). Tama silt loam is loess, or wind-blown fine sediment, and is classified as lean clay (CL) by the Unified Soil Classification System (USCS). Dodgeville silt loam is loess over loamy residuum weathered from dolomite and is classified as lean clay (CL) by the USCS. The majority of the rest of the site is also comprised of silt loam units classified as lean clay.

5.1.2. *Geotechnical Report on Soil Conditions*

5.1.2.1. *Provide a summary of conclusions from any geotechnical report or evaluation of soils in the Project Area including:*

- ☐ *Results of soil borings including a review of soil bearing capacity and soil settlement potential.*
- ☐ *Identify any soil conditions related to site geology that might create circumstances requiring special methods or management during construction.*

5.1.2.2. *Depth to Bedrock*

- ☐ *Identify any sites where foundation construction must be modified because of the presence of bedrock.*
- ☐ *Describe construction methods and foundation issues associated with situations where bedrock formations are near the surface.*

³ Mudrey, M.G., Jr., Brown, B.A., and Greenberg, J.K., 1982, Bedrock Geologic Map of Wisconsin: University of Wisconsin-Extension, Geological and Natural History Survey. Scale = 1:1,000,000

⁴ Carter, J.T. and Gotkowitz, M.B., 2011. Depth to Bedrock map of Iowa County, Wisconsin. University of Wisconsin-Extension, Geological and Natural History Survey. Scale = 1:100,000

⁵ Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. <https://websoilsurvey.sc.egov.usda.gov/?referrer=Citation.htm-HomeLink1>. Last modified 08/21/2017.

□ Discuss the likelihood or potential that construction on bedrock formations may negatively impact private wells within two miles of turbine sites.

Westwood reviewed a geotechnical engineering report performed by Terracon, dated March 9, 2018 (Appendix T). 21 borings were performed within the Project Area.

Subsurface conditions encountered generally consist of 0.1 to 4 feet of topsoil with organics over very soft to very stiff lean, fat, and silty clay with trace gravel generally encountered from 3.5 to 15 ft below ground surface (bgs). The underlying layer encountered was medium-dense to dense poorly-graded sand (SP) with cobbles at 11 to 15 ft bgs. Auger refusal was encountered at an average depth of 13 ft bgs, with several locations as shallow as 11 ft bgs. Groundwater was encountered in 3 of 21 borings at depths of 5, 5, and 8 ft bgs. It should not be assumed that the absence of observable water in the other borings means the boring was terminated above groundwater. Due to the low permeability of fine-grained soils, it may require a relatively long period of time after drilling for groundwater levels to equilibrate.

Terracon recommends 3,000 psf as a maximum net allowable bearing pressure beneath shallow foundations, as well as approximately 1 inch of expected total settlement and 1/2 to 2/3 inches of differential settlement.

Eighteen (18) out of the twenty-one (21) borings drilled for this Project met refusal in the sand layer due to the presence of cobbles within the sand at depths that ranged from 8 ½ feet to 14 ½ ft bgs as evidenced by standard penetration test (SPT) blow counts of 50 blows for zero to 4 inches. During driven pile installation, refusal should be expected at depths of 8 ½ feet to 14 ½ ft bgs.

A preliminary corrosion analysis was performed with laboratory testing for sulfide reaction, soluble sulfate content, soluble chloride content, redox potential, box electrical resistivity, and pH. Four of the five samples tested positive for corrosion potential, which is not unexpected for fine-grained soils with high moisture contents. Corrosion protection measures such as galvanization or sacrificial steel may be necessary.

Per the Terracon report, the soils on this site are frost susceptible. The typical frost depth for southwest Wisconsin for foundation design considerations is 48 inches (4 feet). Terracon recommends an ultimate adfreeze (frost heave) of 1,000 psf acting along the pile perimeter to a depth of 4 ft bgs. Helical pile design may be considered as a more economical approach to mitigating the effects of frost heave compared to deep driven or grouted pile foundations.

Based on desktop research described above, nearby water well logs, and auger refusals noted in the Terracon boring logs, bedrock should generally be expected at depths of 10 to 15 ft bgs. Pile foundations could exceed these depths in order to resist frost heave forces, in which case drilling holes several feet into the bedrock may be necessary. The

holes may then be backfilled with native soil cuttings, imported granular fill, flowable fill, or cement to support the pile foundation. Ballast foundations could also be used in instances of shallow pile refusal due to bedrock or cobbles. See Appendix D for examples of these foundation types. None of these methods are expected to negatively impact private wells in the area.

Additional Information in Response to Commission Staff Information Request No. 01.44.

Staff Information Request No. 01.44. (Application page 38, Section 5.1.2.1 and Appendix D, AFR Section 5.1.2.1.) The driven pile, cast-in-place cross, and helical pile diagrams do not have an approximate/typical depth to which the piles should be sunk. A note states that specifics would be discerned in the design process, but typical information should be generally known. Provide a typical estimated depth and compare to the possible limit of 8.5 feet identified in the geotechnical report.

Pile installation refusal at 8.5 ft may limit embedment depth to shallower than desired for typical driven piles, depending on additional geotechnical investigation. If that is the case, Badger Hollow would likely consider alternate pile designs such as the example shown in Details 4 and 5 that can provide the required foundation strength where shallow refusals are encountered at specific locations. These cast-in-place or helical piles will have a typical embedment depth of 8 ft or less.

Additional Information in Response to Commission Staff Information Request No. 01.45.

Staff Information Request No. 01.45. (Application page 38, Section 5.1.2.1 and Appendix D, AFR Section 5.1.2.1.) The geotechnical report indicated that 18 of the 21 borings performed could limit pile lengths to pilings as short as 8.5 feet. Mentions are made of requiring going at least four to five feet below surface grade to avoid the possibility of frost upheaval, while it is unclear if deeper excavations may be needed. Clarify if limitations to 8.5 feet would result in acceptable and safe pilings.

While the geotechnical report appears to suggest that standard, driven piles should work for the majority of the site, a final Geotech study will be completed prior to construction which will confirm the exact pile requirements. If standard, driven piles are not sufficient, alternative pile types such as screw piles, helical piles, or rock anchor piles may be used. The final decision will be approved by a structural engineer to ensure compliance with all applicable regulations and the safety and durability of the Project.

5.2. Topography

5.2.1. Describe the general topography of the Project Area.

The existing topography within the Project Area can be described as rolling hills, though the developed portion has a relatively flat grade. Surface elevations range from 1011 to 1234 feet above mean sea level. Most of the Project Area is level to nearly-level topographically, which is consistent with the current agricultural production. There are

also a few streams and drainages present. The Project will be designed to use the existing topography to the maximum extent practicable.

5.2.2. Describe expected changes to site topography due to grading activities.
Minimal grading changes to the existing topography within the Project Area are anticipated. Panel arrays will be designed and constructed to follow the existing topography when possible.

Additional Information in Response to Commission Staff Information Request No. 01.46.

Staff Information Request No. 01.46. (Application page 40, Section 5.2.2, AFR Section 5.2.2.) Some of the solar arrays and access roads (alternate and primary) appear to be located on hillsides with complicated terrains. Clarify whether significant grading would be required to construct in these locations, and whether proposed access roads would be designed to accommodate the topography. Describe any grading required for access roads.

The final design will be optimized to follow the existing topography and avoid significant grading. Access roads would generally be designed at existing grade to minimize significant grading.

5.3. Land Cover

5.3.1. Vegetative Communities in the Project Area. List and identify the dominant plants in the following community categories: Analysis should use recent data, not greater than 2 years old. Land cover can be based on recent aerial photography or on-site evaluation.

5.3.1.1. Agricultural

- ☐ Row crops.
- ☐ Hay/pasture/old fields.
- ☐ Other.

The common row crops within the Project Area are corn (*Zea mays*) and soybeans (*Glycine max*).

Hay and pasture land are typically dominated by alfalfa (*Medicago sativa*) or orchard grass (*Dactylis glomerata*).

5.3.1.2. Non-Agricultural Upland

- ☐ Prairie/Grasslands.
- ☐ Upland Woods.

Grasslands within the Project Area are typically dominated by big bluestem (*Andropogon gerardi*) and smooth brome (*Bromus inermis*) in drier areas and reed canary grass (*Phalaris arundinacea*) in wetter areas.

Upland woodlands are typically comprised of maple/basswood/ash (*Acer saccharum*/*Tilia americana*/*Fraxinus pennsylvanica*) or burr (*Quercus macrocarpa*) and

white oak (*Quercus alba*). The woodland communities are defined by the Natural Communities of Wisconsin⁶ as Southern Mesic Forests, Southern Dry-Mesic Forests, or Southern Dry Forests. Some red (*Pinus resinosa*) and white pine (*Pinus strobus*) plantations are also located within the Project Area.

5.3.1.3. Wetlands

- ☐ *Wooded Wetlands.*
- ☐ *Marshes.*
- ☐ *Bogs.*
- ☐ *Fens.*

Wooded wetlands within the Project Area are typically located in riparian areas and dominated by cottonwood (*Populus deltoides*), box elder (*Acer negundo*), silver maple (*Acer saccharinum*), and green ash (*Fraxinus pennsylvanica*). The wooded wetland communities are typical of the Floodplain Forest as defined by the Natural Communities of Wisconsin⁶.

Herbaceous wetlands within the Project Area are dominated by graminoids, such as reed canary grass and cattails (*Typha* spp.), and are primarily associated with watercourse features. Some isolated wetland basins are located within the Project Area. As much of the Project Area is used for agricultural purposes, the herbaceous wetlands are typically disturbed and contain non-native plant species.

There are likely no bog or fen features within the Project Area as these wetlands are typically not found in this area of the state and land cover within the Project Area is mostly agricultural.

5.3.2. Acres of Land Cover Categories in Project Area

Estimate of the number of acres within each land cover category listed below. Provide this information in table format and explain what method was used to calculate the areas reported.

5.3.2.1. Agricultural

- ☐ *Row crops.*
- ☐ *Hay/pasture/old field.*
- ☐ *Other.*

5.3.2.2. Non-Agricultural Upland

- ☐ *Prairie/Grasslands.*
- ☐ *Upland Woods.*

5.3.2.3. Wetlands

- ☐ *Wooded Wetlands.*

⁶ Wisconsin Department of Natural Resources. 2017. Wisconsin's natural communities. <https://dnr.wi.gov/topic/endangeredresources/communities.asp>

- ☐ *Marshes.*
- ☐ *Bogs.*
- ☐ *Fens.*

5.3.2.4. *Developed Land*

- ☐ *Residential.*
- ☐ *Commercial/Industrial.*

Land cover within the Project Area was mapped and described using data and descriptions from the Wiscland 2.0 Land Cover Data (WLCD), which combines ground-level mapping, satellite imagery, and USDA data in a product produced jointly by the WDNR, UW-Madison and the State Cartographer's Office. The updated view of Wisconsin's land cover was accomplished by using data from the U.S. Government's Landsat series of satellites followed up with a coordinated field collection effort combining WDNR staff assistance and a WDNR summer field collection crew that visited field locations in 2015 to collect and verify land cover type information. Land cover was also ground-truthed during a site visit by a biologist in November 2017 in order to evaluate the accuracy of the land cover types. Based on field observations and recent aerial photographs, much of the land cover within the Project boundary required reclassification to improve accuracy.

Following the amendments to the WLCD, a total of seven land cover types were recognized and mapped within the Project Area. Forest, grassland, hay/pasture, cropland, disturbed/developed, waterway, and wetland comprise the land cover types within the Project Area.

The estimated land cover type acreage and percentage within the Project Area are provided in the table below.

Table 5.3.2.4 – Estimated Land Cover Type Within Project Area		
Land Cover Type	Acreage	Percentage
Cropland	6,741.32	63.07
Hay/Pasture	1,950.95	18.25
Disturbed/Developed	317.53	2.97
Forest	199.55	1.87
Grassland	1,028.47	9.62
Wetlands (Total)	380.28	3.56
Wooded	13.0	
Marshes	367.28	
Waterway	70.02	0.66
Total	10,688.12	100.00

Additional Information in Response to Commission Staff Information Request No. 01.47.

Staff Information Request No. 01.47. (Application page 42, Section 5.3, AFR Section 5.3.) Clarify whether wooded wetlands are included in the wetlands acreage totals. If so, separate them out in the tables and provide an acreage number.

Wooded wetlands have been included in the wetlands acreage totals. Wooded wetlands have been estimated to cover approximately 13 acres in the Project Area. Estimated amounts are based on recent aerial photos overlain on estimated wetland boundaries. The wooded wetlands have been added to updated Table 5.3.2.4 above.

5.3.3. Land Cover Impacts

In table format, estimate the number of acres, in each land cover type identified in Section 5.3.2, that will be affected by Project construction and or facilities.

Breakdown impacts into temporary vs. permanent impacts for the following categories.

5.3.3.1. Panels

The areas land cover impacts for array areas listed below include impacts for panels, inverter stations, access roads, and collection within the fenced areas.

Table 5.3.3.1 – Array Area Land Cover Impacts				
Land Cover Type	Primary Arrays		Alternate Arrays	
	Area (Acres)	Percent of Total Project Area	Area (Acres)	Percent of Total Project Area
Developed Land	1.31	0.01	0.00	0.00
Forest	3.36	0.03	0.95	0.01
Grassland	45.64	0.43	1.80	0.02
Hay/Pasture	572.97	5.36	278.49	2.61
Row Crop/Cropland	1605.13	15.02	74.56	0.70
Waterway	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00
Totals	2228.41	20.85	355.8	3.33

Due to the planned changing of the land cover surrounding the solar panels, most of the land cover within the fence boundaries is assumed to be changed. Because there will be no surface construction within a wetland or waterway, both of these values were placed at zero impact. Though the land cover can be converted back to its original purpose following the decommissioning of the Project, the impact will be considered permanent for the duration of the Project.

Additional Information in Response to Commission Staff Information Request No. 01.48.

Staff Information Request No. 01.48. (Application page 43, Section 5.3.3.1, AFR Section 5.3.3.1.) The application describes 3,500 acres being used for the proposed project lands. Table 5.3.3.1 for array area land coverage shows 2,228 acres for the primary arrays and 356 acres for the alternates, totaling approximately 2,584 acres. Explain the difference between the 3,500 and 2,584 acres totals, including other structures or equipment that may account for the difference.

The 2,228 acres for primary arrays and 356 acres for alternate arrays include all proposed developed area within the fence line. The incremental 916 additional acres (3,500 total) includes leased land that is not currently planned for development for a variety of reasons, many of which are covered in section 1.1.1.3 and include operational setback requirements and attempts to reduce construction impacts.

Additional Information in Response to Commission Staff Information Request No. 01.49.

Staff Information Request No. 01.49. (Application page 43, Section 5.3.3.1, AFR Section 5.3.3.1.) Table 5.3.3.1 shows that primary array acreage would be 2,228 and alternative array acreage would be 356. Calculating a ratio of those areas, the alternative acreage figure is approximately 16 percent of the primary acreage figure. The Commission requires that wind or solar projects have a minimum of 25 percent alternative sites from which the Commissioners can choose. Describe how the minimum 25 percent alternative site acreage would be achieved, given the information presented in the application.

In the CPCN Application, Badger Hollow addressed the 25% alternative site requirement by proposing an area and layout for 375MW, 25% greater than the requested 300MW to be permitted. In other words, the application focused on the 25% alternative in terms of megawatts, not acres.

The 2,584 acres within the primary and alternative array areas includes proposed developed acres within the fence line. The Project area contains 3,500 acres under lease, or an additional 916 acres beyond the sum of the primary array acres and alternate array acres. These 916 acres are additional alternates. The sum of 916 acres and 356 acres is 1,272 acres, which is 57% of the 2,228 acres proposed as primary development area.

5.3.3.2. Collector Circuits.

For collector circuits in wooded areas, disclose whether or not a ROW around the cables would be maintained in an open (no tree) condition.

Table 5.3.3.2 – Collection System Land Cover Impacts				
Land Cover Type	Primary Collector Lines		Alternate Collector Lines	
	Area (Acres)	Percent of Total Project Area	Area (Acres)	Percent of Total Project Area
Developed Land	3.01	0.03	1.79	0.02
Forest	0.26	0.00	0.1	0.00
Grassland	7.39	0.07	1.34	0.01
Hay/Pasture	7.56	0.07	2.1	0.02
Row Crop/Cropland	20.16	0.19	15.24	0.14
Waterway	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00
Totals	38.38	0.36	20.57	0.19

Land cover impact for collector circuits were calculated for those laying outside of the fence boundaries to avoid counting impact twice between this section and section 5.3.3.1. An impact buffer of 15 feet to each side of the collector center line was used to allow for the potential impact of the equipment used to place them. Because there will be no construction within a wetland or waterway, both of these values were placed at zero impact. This impact is considered temporary, because after the circuits are placed, the land cover will be allowed to return to its existing condition.

For the forested areas expected to be impacted by collection, they will be maintained in an open (no tree) condition.

5.3.3.3. Access Roads

Table 5.3.3.3 – Access Road Land Cover Impacts				
Land Cover Type	Primary Access Roads		Alternate Access Roads	
	Area (Acres)	Percent of Total	Area (Acres)	Percent of Total
Developed Land	0.37	0.00	0.04	0.00
Forest	0.02	0.00	0.01	0.00
Grassland	0.71	0.01	0.12	0.00
Hay/Pasture	1.08	0.01	0.38	0.00
Row Crop/Cropland	7.82	0.07	0.04	0.00
Waterway	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00
Totals	10.00	0.09	0.59	0.01

Land cover impact for access roads were calculated for those laying outside of the fence boundaries to avoid counting impact twice between this section and section 5.3.3.1. The impact to land cover due to the access roads is considered a permanent impact, and is calculated based on the maximum proposed road width of 20 feet.

5.3.3.4. Crane Paths.

This section does not apply to solar Projects.

5.3.3.5. Substation

Table 5.3.3.5 – Substation Landcover Impacts		
Land Cover Type	Area (Acres)	Percent of Total
Developed Land	0.15	0.00
Forest	0.00	0.00
Grassland	0.18	0.00
Hay/Pasture	1.08	0.01
Row Crop/Cropland	0.00	0.00
Waterway	0.00	0.00

Wetland	0.00	0.00
Totals	1.41	0.01

Impacts in this section account for the proposed Project Substation. Impacts for the interconnection location is considered in the separate Transmission Line CPCN application.

5.3.3.6. O&M Building.

Badger Hollow will use a preexisting developed area, and possibly an existing structure as the O&M Building and as such, the impacts to land cover are expected to be minimal.

5.4. Wildlife

5.4.1. *Describe existing wildlife resources and estimate expected impacts to plant and animal habitats and populations.*

Below is a summary of the Site Characterization Study (SCS) (Appendix F), a detailed report that describes the existing animal and plant resources and the potential for sensitive species to be present within the Project Area.

As detailed in Section 5.3.2 (or Table 3.1 and Figure 4 of the SCS), the land cover within the Project Area is dominated by cultivated crops (82%), such as corn and soybean. Corn and soybean are annual cover types that are typically used by a few common wildlife species on a limited seasonal basis. Species that may use agricultural land include white-tailed deer (*Odocoileus virginianus*), small mammals such as mouse [Family Muridae] and vole [Family Cricetidae] species, raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*) and woodchuck (*Marmota monax*). Bird species that may use the agricultural land include ring-necked pheasant (*Phasianus colchicus*), blackbird [Family Icteridae] species and other small perching birds, and common raptors such as red -tailed hawk (*Buteo jamaicensis*). After crops are harvested, the fields may offer short term foraging areas for common waterfowl including Canada geese (*Branta canadensis*) and mallard (*Anas platyrhynchos*). Reptile and amphibian species known to use agriculture habitat include common garter snake (*Thamnophis sirtalis*), northern leopard frog (*Lithobates pipiens*) and American toad (*Anaxyrus americanus*). However, due to the relative lack of plant diversity and habitat structure and the temporary seasonal nature of the crop cover, the use of cropped field habitat by the aforementioned species is likely limited.

Hay and pastureland offer a similar disturbed habitat as that found in the agricultural areas and make up less than 13% of the Project Area. Species that may use hay and pastureland include white-tailed deer, cottontail rabbit (*Sylvilagus floridanus*), mouse and vole species, raccoon, and striped skunk. Bird, amphibian, and reptile species that may use hay and pastureland will be similar to those listed in the agricultural section. However, due to the relative lack of diverse vegetative cover and habitat structure, and regular grazing and hay cutting, this habitat offers mostly temporary habitat for foraging rather than stable long-term habitat.

Forested habitat within the Project Area, which comprises less than 2% of the Project Area, is fragmented and predominately located adjacent to agricultural fields. Species that may use these forested areas are those adapted to small woodlots including white-tailed deer, gray squirrel (*Sciurus carolinensis*), woodchuck, and mouse and vole species. Birds that may use these woodlots include American robin (*Turdus migratorius*), blue jay (*Cyanocitta cristata*), downy woodpecker (*Picoides pubescens*) and other common bird species. Reptile and amphibian species that use woodlot habitats include common garter snake, wood frog (*Lithobates sylvaticus*), American toad, and tiger salamander (*Ambystoma tigrinum*).

Developed areas, which comprise 3% of the Project Area, are typically used by species accustomed to human disturbance, including mammal species such as the gray squirrel and thirteen-lined ground squirrel (*Ictidomys tridecemlineatus*) and bird species, such as the house sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*).

The limited wetland habitat within the Project Area may be used by species such as the red-winged blackbird (*Agelaius phoeniceus*), mallard, blue-winged teal (*Anas discors*), great blue heron (*Ardea herodias*), as well as other bird species. Also, mammalian species such as mink (*Neovison vison*) and muskrat (*Ondatra zibethicus*) may occur in wetland areas. Many reptile and amphibian species may occur in the wetland areas, including the aforementioned species and other species, such as the painted (*Chrysemys picta*) and common snapping turtle (*Chelydra serpentina*).

Federally-listed threatened or endangered species

A USFWS⁷ Information for Planning and Consultation (IPaC) request (Appendix A) identified seven federally-listed as threatened or endangered species as potentially occurring within the Project Area or the two-mile buffer. Four of the federally-listed species were animals, including the northern long-eared bat (*Myotis septentrionalis*; NLEB), whooping crane (*Grus americana*), Hine's emerald dragonfly (*Somatochlora hineana*), and rusty patched bumble bee (*Bombus affinis*; RPBB). Also, although no longer federally-listed, the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) prohibits anyone, without a permit issued by the Secretary of the Interior, from the take of bald eagles (*Haliaeetus leucocephalus*), including their parts, nests, or eggs. The three remaining federally-listed species are plants, including Mead's milkweed (*Asclepias medii*), northern monkshood (*Aconitum noveboracense*), and prairie bush-clover (*Lespedeza leptostachya*).

Suitable summer habitat for the northern long-eared bat (NLEB) includes forested/wooded habitats where they roost and forage, and occasionally includes adjacent non-forested habitats, such as emergent wetlands or the edges of agricultural fields, old fields, and pastures.

⁷ United States Fish and Wildlife Service. 2018. Information for Planning and Consultation Report for Badger Hollow Utility Scale Solar Facility. May 2018.

Whooping cranes typically use the shallow waters and emergent vegetation bordering the managed impoundments of Necedah National Wildlife Refuge (NNWR) but also use the palustrine and upland scrub-shrub, sedge meadow, and oak savannah habitats found there.

The Hine's emerald dragonfly occurs in wetlands dominated by graminoids that grow in or near water from a mineral source, or fens⁸. Two important characteristics common to wetlands inhabited by Hine's emerald dragonfly appear to be groundwater fed, shallow water slowly flowing through vegetation, and underlying dolomitic bedrock or calcareous limestone⁹ (USFWS 2001).

According to the USFWS¹⁰, RPBB prefer grasslands and tallgrass prairies with abundant and diverse floral resources. Although RPBB occasionally occur in woodland, marsh, park, garden, or agricultural environments, these environments are not preferred by RPBB. Portions of the Project Area occur within the RPBB low potential zone (Exhibit 5.4.1)¹¹.

Bald eagles select nest sites near lakes and rivers in forested areas where tall, large diameter trees are available for nesting¹². Once built, a nest may be reused or added to in subsequent years¹³. Bald eagle wintering grounds typically contain open water, ample food, and roosting sites. Roosts are typically in the super-canopy of trees. Bald eagle stopover habitat is similar to wintering habitat, with food supply being the most important factor⁹. The majority of wintering eagles are found near open water where they feed on fish and waterfowl.

⁸ Swink, F. and G. Wilhelm. 1994. Plants of the Chicago region. Indiana Academy of Sciences. Pp. 921

⁹ U.S. Fish and Wildlife Service. 2001. Hine's emerald dragonfly (*Somatochlora hineana*) recovery plan. Fort Snelling, Minnesota. Pp. 120.

¹⁰ U.S. Fish and Wildlife Service. 2016. Rusty patch bumble bee life history.
https://www.fws.gov/midwest/endangered/insects/rpbb/lifehistory_ssa.html

¹¹ U.S. Fish and Wildlife Service. 2018. Rusty patched bumble bee map.

¹² Grier, J.W. and J.E. Guinn. 2003. Bald eagle habitats and responses to human disturbance in Minnesota. Final report to the Minnesota Department of Natural Resources Natural Heritage and Nongame Wildlife Program – Division of Ecological Sciences. Pp. 44

¹³ Grier, J.W., J.B. Elder, F.J. Gramlich, N.F. Green, J.K. Kussman, J.E. Mathisen, and J.P. Mattsson. 1983. The northern states bald eagle recovery plan. Northern States Bald Eagle Recovery Team. Pp. 130

Mead's milkweed occur in moderately wet (mesic) to moderately dry (dry mesic) upland tallgrass prairie or glade/barren habitat characterized by vegetation adapted for drought and fire. Mead's milkweed prefer stable, late-successional prairie¹⁴.

Northern monkshood occur on moist, moss ledges and cliff bases with cold air drainage resulting in a cool soil environment. Northern monkshood also occur on partially shaded sandstone cliffs and talus slopes. In most of the habitats occupied by the species, there is either active and continuous cold air drainage or cold groundwater flowage out of nearby bedrock¹⁵.

Prairie bush-clover inhabit dry to mesic native prairies that are well-drained, often gravelly, and occur on slopes of kames or eskers (hills of glacially deposited material), and river terraces¹⁶.

With the exception of the RPBB, all of the aforementioned federally-listed species have a low likelihood of occurring within the Project Area due to the paucity of suitable habitat. However, as the Project will primarily be built on land that is currently in agricultural production, no impacts to federally-listed species are expected from Project development or operation.

State-listed threatened or endangered species and species of concern

Of the seven federally-listed species described above, six species have also been awarded state-level conservation statuses. The NLEB is state-listed as threatened and the Hine's emerald dragonfly is state-listed as endangered. Also, the RPBB is recognized as a species of concern. All three of the federally-listed plant species are listed as threatened or endangered in Wisconsin. Seven other species that have potential to occur within the Project Area with state-level statuses include the Bell's vireo (*Vireo bellii*), Henslow's sparrow (*Ammodramus henslowii*), upland sandpiper (*Bartramia longicauda*), big brown bat (*Eptesicus fuscus*), little brown bat (*Myotis lucifugus*), and the eastern pipistrelle (*Perimyotis subflavus*), and a rare reptile identified as potentially occurring within the Project Area by the WDNR in the Endangered Resources Review (ERR 18-329) (Appendix K). The Bell's vireo, Henslow's sparrow, and upland sandpiper, all state-listed as threatened, were identified as potentially occurring within the Project Area from Breeding Bird Survey data available within and near the Project Area boundary (Figure 8 of the

¹⁴ U.S. Fish and Wildlife Service. 2005. Mead's milkweed (*Asclepias meadii*) Fact Sheet. Pp.2

¹⁵ U.S. Fish and Wildlife Service. 2007. Northern monkshood (*Aconitum noveboracense*) Fact Sheet. Pp.2

¹⁶ U.S. Fish and Wildlife Service. 2009. Prairie bush-clover (*Lespedeza leptostachya*) Fact Sheet. Pp.2

SCS). The three bat species, all state-listed as threatened, were identified as potentially occurring within the Project Area based on range maps and habitat availability.

Bell's vireo occur in grassland habitat interspersed with shrub and small trees. Occasionally, Bell's vireo will use pastures, old fields, powerline corridors, and sedge meadows¹⁷. Bell's vireo avoid cultivated croplands, forested areas, and open grasslands.

During the breeding season, Henslow's sparrow use grassland habitats of the Midwest, such as hayfields, pastures, wet meadows, old fields, and Conservation Reserve Program (CRP) land¹⁸. Though, it should be noted that hayfields and pastures are typically not suitable habitat due to their being disturbed for agricultural purposes.

Upland sandpiper prefer short grasslands with little forb and woody vegetation cover. In Wisconsin, upland sandpipers use lightly-grazed pastures, old fields, hayfields, and grasslands for nesting and heavily-grazed pasture, hayfields, and row crops for foraging¹⁹.

During the summer months, big brown bats are commonly found in farmland, urban areas, and edge habitats near water. Big brown bats roost in trees, caves, attics, bat houses, and the eaves of buildings²⁰. Big brown bats prefer to forage in urban landscapes along habitat edges, over open water, and along shorelines. During the winter months, big brown bats hibernate in caves, mines, buildings, culverts, and basements.

Little brown bats roost in man-made structures during the summer months but will occasionally use trees or rock crevices. Little brown bats choose roost sites based on

¹⁷ Wisconsin Department of Natural Resources. 2013. Wisconsin Bell's vireo species guidance. Bureau of Natural Heritage Conservation, Wisconsin Department of Natural Resources, Madison, Wisconsin. PUB-ER-703.

¹⁸ Cooper, T. 2012. Status assessment and conservation plan for the Henslow's sparrow (*Ammodramus henslowii*). Version 1.0. Fish and Wildlife Service, Bloomington, MN. Pp. 126

¹⁹ Wisconsin Department of Natural Resources. 2014. Protocol for incidental take permit and authorization: Upland sandpiper (*Bartramia longicauda*). Pp. 7

²⁰ Wisconsin Department of Natural Resources. 2017. Big brown bat species guidance PUB ER-707. Pp. 11

proximity to water, as they prefer to forage over open water, shorelines, or along edge habitat²¹. During the winter months, little brown bats hibernate in caves or mines.

During the summer months, eastern pipistrelles roost in the foliage of deciduous trees and will often switch roost sites over the course of the summer. Occasionally, female eastern pipistrelles will use barns for maternity roosts but prefer to use oak or maple trees. Eastern pipistrelles forage along waterways, forest edges, and in forest canopies. During the winter months, eastern pipistrelles hibernate in caves or abandoned mines²².

As the Project will primarily be constructed on agricultural land, it is unlikely that it will negatively affect Bell's vireo, Henslow's sparrow, or eastern pipistrelle populations, as these species avoid agricultural habitats. Although it is possible that the identified rare reptile, upland sandpiper, big brown bat, and little brown bat may occasionally use the agricultural land that will be developed into the solar facility, it is unlikely that Project development will negatively affect these species. If the four species are disturbed by Project development, it will likely be limited to the duration of Project construction and not continue into the operational stage. Human activity during Project construction is not likely to differ from human activity that takes place during agricultural row-crop production. Therefore, it is unlikely that Project development will adversely impact sensitive species that may occur within the Project Area.

Conservation areas

The Pecatonica River Prairie Important Bird Area (IBA) is located approximately one mile southeast of the Project Area (Exhibit 5.4.1). The IBA provides important nesting areas for a variety of grassland bird species, such as the upland sandpiper (*Bartramia longicauda*), sedge wren (*Cistothorus platensis*), Henslow's sparrow (*Ammodramus henslowii*), grasshopper sparrow (*Ammodramus savannarum*), field sparrow (*Spizella pusilla*), bobolink (*Dolichonyx oryzivorus*), and dickcissel (*Spiza americana*). Another evaluation was conducted to document government owned or leased biological resource management areas within the Project Area and an associated two-mile buffer. Results of the effort indicated that 1.6 acres of Blue River remnant fishery habitat is located approximately 1.5 miles north of the Project boundary (Exhibit 5.4.1).

No significant impacts to wildlife are anticipated from Project construction or operation. During Project construction, wildlife within the construction area will be displaced temporarily, due to construction noise and human activity. The displacement will be a minor and temporary impact because Project construction will be temporary and similar

²¹ Wisconsin Department of Natural Resources. 2017. Little brown bat species guidance PUB ER-705. Pp. 11

²² Wisconsin Department of Natural Resources. 2017. Eastern pipistrelle species guidance PUB ER-706. Pp. 10

to the farming activity that occurs within the Project Area. Species using the woodland and wetland areas are unlikely to be negatively affected by Project construction, as the planned siting of facility infrastructure lies mostly outside of these habitat types.

The operational stage of the Project is expected to have a predominately positive impact on area wildlife. For example, once construction is complete, the majority of the Project Area will be disturbed less frequently than it was during row-crop farming practices. Also, the herbaceous habitat available under the panels and in the general Project Area will improve habitat stability and diversity compared to row-crop habitat. It should be noted that the perimeter fence may exclude some large mammals from entering the Project Area, most small mammals, birds, reptiles and amphibians will still be able to access this area, whether through or over the fence.

Mitigative Measures

Badger Hollow consulted with the DNR on potential impacts to wildlife species, and the DNR made recommendations to avoid impacts to a rare reptile species (Appendix K). Badger Hollow does not expect to impact the area identified as suitable rare reptile habitat; and if it does, it will assess the suitability of the habitat within the area. If suitable habitat is identified, Badger Hollow will conduct presence surveys, and if presence is determined, Badger Hollow will coordinate with DNR to avoid impact to this species.

The DNR also identified that a high-quality natural community may be located within the Project area. If Project impacts are anticipated to the area identified as potential natural community, Badger Hollow will conduct a field visit to determine whether there is presence of this natural community in the area noted by DNR. If so, protective measures will be incorporated into the Project design to the extent practicable.

5.4.2. Avian and bat pre-construction surveys (See Habitat Surveys and Biological Assessments in the Introduction)

5.4.2.1. Provide a summary of pre-application consultation meetings held with DNR for the purposes of determining whether or not pre-construction bird and/or bat studies would be required for the Project.

5.4.2.2. If, after consultation with the DNR, avian and/or bat pre-construction studies are required, provide the following:

- ☐ *A copy of the DNR approved survey methodologies for both avian and/or bat studies including the dates of surveys and a schedule for releasing data and reports to the PSC and DNR.*
- ☐ *Copies of all data collected for all pre-construction studies (data should be provided using a format acceptable to DNR and PSC staff.).*
- ☐ *Final report/s or analyses prepared using the data collected. (Minimum of three seasons)*

This section addresses the requirements of Section 5.4.2 of the Application Filing Requirements, including all subsections, i.e., 5.4.2.1 through 5.4.2.2.

On May 3, 2018, Invenergy met with the DNR at the Madison office and discussed the potential need for pre-construction bird and bat surveys for the Badger Hollow Project. It was determined by the DNR that pre-construction bird and bat surveys are not warranted for the Badger Hollow Project, as it will be a solar energy facility and not a wind energy facility.

5.5. Public Lands

Additional Information in Response to Commission Staff Information Request No. 01.51.

Staff Information Request No. 01.51. (Application page 54, Section 5.5 and Appendix I, AFR Section 5.7.) Provide future land use plans for the towns of Mifflin, Eden, and Wingville.

Badger Hollow will provide future land use plans, if they are created. The current land use plans for Mifflin and Eden were included in the original CPCN Application at Appendix I-7. The current land use plan for the Wingville was included in the original CPCN Application at Appendix I-3.

Additional Information in Response to Commission Staff Information Request No. 01.52.

Staff Information Request No. 01.52. (Application page 54, Section 5.5 and Appendix I, AFR Section 5.7.) Provide the future land use maps associated with the land use plans.

The original CPCN Application provided current land use plans with maps to the extent they exist. Badger Hollow will provide future land use maps for land use plans if they are created.

List all public properties within the Project Area and in a separate list all public properties within 2 miles of the Project Area boundary.

5.5.1. State Properties, including:

5.5.1.1. Wildlife Areas.

5.5.1.2. Fisheries Areas.

5.5.1.3. State Parks.

There are no state-managed parks or wildlife management areas within the Project Area or within two miles of the Project Area. There is one DNR-held conservation easement, the Rem-Blue River, located approximately 1.5 miles north of the Project boundary.

5.5.2. Federal Properties, including:

5.5.2.1. Wildlife Refuges.

5.5.2.2. Parks.

5.5.2.3. Scenic Riverways.

There are no federally-managed properties located within the Project Area or within two miles of the Project Area.

5.5.3. *County Parks*

There are no county parks located within the Project Area or within two miles of the Project Area.

5.6. **Local Zoning and Safety**

5.6.1. *through 5.6.5*

Sections 5.6.1 through 5.6.5 apply only to public utilities, and therefor are not addressed in this Application.

5.6.6. *Provide a list of potential local issues normally associated with zoning, road use and safety, or other condition uses.*

5.6.6.1. *Provide copies of all correspondence to and from local government pertaining to issues of zoning, safety, or local road use safety plans.*

Copies of local government correspondence are included in Appendix A.

5.6.6.2. *Provide a discussion of how local concerns will be accommodated.*

Badger Hollow has discussed zoning and other local issues with County and Town elected officials and Iowa County Zoning and Land Use staff. In Iowa County, zoning decision authority is exercised at the county level with input and consultation from the towns. Land in the Project Area is primarily zoned “Exclusive Agriculture” pursuant to the conditions of Chapter 3 of the Iowa County Zoning Ordinance. Iowa County has a Farmland Preservation ordinance in compliance with Chapter 91 requirements.

Badger Hollow has stated a desire to work cooperatively with town and county authorities to identify and address issues and concerns. Badger Hollow will seek a Conditional Use Permit to install and operate the solar facilities on Agricultural Lands and rezoning approval for the site of the proposed substation and Operations and Maintenance building.

In addition to zoning/land use issues, local officials and members of the public have inquired about the following issues:

- Responsibility for maintenance and repair of roads used during construction.
- Type and size of vehicles used in construction.
- Construction materials and employee traffic routes.
- Location of any new driveways.
- Site vegetation management plans.
- Stormwater management impacts during and after construction.
- Emergency response needs of the proposed facility.
- Source of Project construction and operations staff.
- Facility lighting.
- Local government tax impacts.

Badger Hollow has proposed that a Joint Development Agreement be used to memorialize agreements on management and responsibility for local concerns.

Badger Hollow has established a thorough and multi-faceted outreach plan to receive local concerns as further discussed in section 14.

Upon receipt of a local concern, Badger Hollow will work in good faith to reach a mutually agreeable resolution.

For example, a Project Area resident has shared with the Badger Hollow team that he does not wish his property to be surrounded by security fencing on three sides. As the proposed primary array area nearest this resident is to the west (backyard) of his house, Badger Hollow has modified the fencing plan so that fencing will only be installed on his western property line and not all three sides.

Appendix G includes a study of Health and Safety Impacts of Solar Photovoltaics performed by North Carolina State University, which also addresses concerns that the public may have regarding the Project. The study addresses concerns of public health and safety in the following categories: (1) Toxicity, (2) Electromagnetic Fields, (3) Electric Shock and Arc Flash, and (4) Fire. In each of these sections, the negative health and safety impacts of utility-scale PV development were shown to be negligible, while the public health and safety benefits of installing these facilities are significant and far outweigh any negative impacts. In particular, the study identifies that due to the reduction in the pollution from fossil-fuel-fired electric generators, the overall impact of solar development on human health is overwhelmingly positive. This pollution reduction results from a partial replacement of fossil-fuel fired generation by emission-free PV-generated electricity, which reduces harmful sulfur dioxide (SO₂), nitrogen oxides (NO_x), and fine particulate matter (PM 2.5).

5.7. Land Use Plans

Provide a copy of all land-use plans adopted by local governments that pertain to the Project Area, extending out two miles from the Project boundary. (See Application Size

in the Introduction.) Include not only general land-use plans, but also other relevant planning documents such as:

- 5.7.1. County Recreation Plans.*
- 5.7.2. Farmland Preservation Plans.*
- 5.7.3. Highway Development Plans.*
- 5.7.4. Sewer Service Area Plans.*

Copies of the requested land-use plans are included in Appendix I.

Additional Information in Response to Commission Staff Information Request No. 01.53.

Staff Information Request No. 01.53. (Application page 54, Section 5.7.2, AFR Section 5.7.2.) Provide information regarding whether any of the project area is covered by a Farmland Preservation Plans. If so, provide the plans.

The Iowa County Farmland Preservation Plan is attached at Appendix DD. The A-1 and AC-1 zoning districts are covered by the Iowa County Farmland Preservation plan. The majority of the project area is zoned A-1 or AC-1.

5.8. Archeological and Historic Resources

If after consultation with the Wisconsin Historical Society (WHS) and PSC staff, the work of a qualified archeologist is required, reference the archeologist's report in the application. (Information about the location of archeological and historic resources are not considered confidential)

5.8.1. Provide a list of all historic and archeological sites potentially affected by the proposed Project.

5.8.2. For each proposed site, list the county, town, range, section and ¼, ¼ section in which construction would occur.

5.8.3. For each archeological or historical resource identified, describe how the proposed Project might affect the resource and how the Project could be modified to reduce or eliminate any potential effect on the resource. Modifications to the proposed Project could include site modification, route changes for access roads, crane paths, or collector circuits, and/or modified construction practices.

This section and the report in Appendix J addresses the requirements of Section 5.8 of the Application Filing Requirements, including all subsections, i.e., 5.8.1 through 5.8.3.

Following the recommendation of the Wisconsin Historical Society (WHS), Badger Hollow contracted the University of Wisconsin-Milwaukee Cultural Resources Management (UWM CRM) to perform a desktop review of potential archaeological and historic resources (Appendix J).

Based on the UWM CRM report, no previously documented archaeological resources will be impacted by Project development. Four historic structures were identified within

or adjacent to the Project Boundary that require a field investigation to determine if they might be affected by Project development. Badger Hollow plans to perform field reconnaissance of the historic structures in May or June 2018. When the reconnaissance report is available, Badger Hollow will provide the results and any recommended modifications to the proposed Project to mitigate any identified potential effect on historic properties.

Additional Information in Response to Commission Staff Information Request No. 01.50.

Staff Information Request No. 01.50. (Application page 54, Section 5.8, AFR Section 5.8.) Provide survey results for structures AHI 46923, AHI 47075, AHI 47076, AHI 47078 to determine potential eligibility for historic registers. Submit the survey results as soon as they are available.

The survey is complete and the report is attached at Appendix CC. Further evaluation has determined no impact to these structures.

5.9. ER Review - Endangered, Threatened, and Special Concern Species and Communities

5.9.1. Provide a copy of the DNR approved ER review and all supporting materials (See DNR Application Needs in the Introduction.).

5.9.2. Include a map showing the location of endangered, threatened and special concern species and/or their habitat, and natural communities identified on the ER Review that occur within a minimum of 1-mile of the proposed Project Area or as agreed to by the DNR.

ER Reviews, supporting materials, and maps should be filed as confidential documents (See DNR Application Needs in the Introduction).

Westwood Professional Services requested an Endangered Resources Review (ERR) for the Project on behalf of Badger Hollow and received a response from the DNR (ERR log# 18-329) on May 4, 2018 (Appendix K). The DNR did not identify any required permits or mitigation actions but did mention two recommended actions in their response.

DNR made recommendations to avoid impacts to a rare reptile species. Badger Hollow does not expect to impact the area identified as suitable rare reptile habitat; and if it does, it will assess the suitability of the habitat within the area. If suitable habitat is identified, Badger Hollow will conduct presence surveys, and if presence is determined, Badger Hollow will coordinate with DNR to avoid impact to this species.

The DNR also identified that a high-quality natural community may be located within the Project area. If Project impacts are anticipated to the area identified as potential natural community, Badger Hollow will conduct a field visit to determine whether there is presence of said natural community in the area noted by DNR. If so, protective measures will be incorporated into the Project design to the extent practicable.

A map of the locations of identified resources is also included in Appendix K.

6.0 WATERWAY/WETLAND PERMITTING ACTIVITIES

Section 6.0 covers information required by DNR for waterway, wetland, and erosion control permits. The following subsections apply to both proposed and alternate sites.

Westwood completed an initial desktop water resource delineation for the Project. Wetlands and waterways were desktop delineated in a larger, overall general, Project Area encompassing approximately 10,700 acres. Wetlands and waterways were desktop delineated using a level one routine determination method set forth in the USACE 87 Manual and the North central and Northeast Regional supplement. Desktop delineated wetlands and watercourses were delineated using USGS topography, National Wetland Inventory Mapping (NWI), National Hydrography Dataset flowlines and water basins (NHD), Wisconsin Wetland Inventory Mapping (WWI), FEMA floodplain mapping, Digital Elevation Model mapping, Hillshade contour mapping and aerial photography from 2010, 2015 and 2017 from the NAIP and BING.

All areas that appeared to have wetland signatures were delineated as wetland in the desktop delineation. Areas where clear channels were visible in more than one year of aerial photography were delineated as waterways in the desktop delineation. It is expected that some of these areas will be determined to be upland when the field delineation is completed.

A total of 21 wetland and 7 waterway features were delineated (See Table 6.0, Appendix Z).

Of the 21 wetlands identified in the desktop delineation, 7 are large riparian wetland complexes that are located along meandered waterways. These wetland complexes are likely to be U.S. Army Corps of Engineers Jurisdictional Wetlands under Section 404 of the Clean Water Act. Eleven wetlands are located in isolated swales that do not have defined channels. These wetlands have yet to be determined whether they are U.S. Army Corps of Engineers Jurisdictional Wetlands under Section 404 of the Clean Water Act. Two wetlands are located in isolated basins and are likely not U.S. Army Corps of Engineers Jurisdictional Wetlands under Section 404 of the Clean Water Act. The last wetland is an excavated lagoon and is likely not a U.S. Army Corps of Engineers Jurisdictional Wetland under Section 404 of the Clean Water Act.

The boundaries from the desktop report within the Potential Project Disturbance Area will be confirmed with an official field delineation. Areas within the proposed perimeter fencing for the solar arrays as well as corridors for collection lines outside the perimeter fencing will be field reviewed. Wetlands and waterways in these areas will be delineated by a qualified Environmental Scientist. A 50-ft wide corridor will be delineated along the collections lines through the creation of a 25-ft buffer from the centerline. The corridor delineation will review the desktop delineated wetlands, all areas mapped on the WWI, NWI, and NHD as wetlands or watercourses, the areas of mapped hydric soils, and any other “suspect areas” as identified on Lidar topography, DEM mapping or on aerial photographs. The Project will be sited to avoid these features to the greatest extent practicable.

Additional Information in Response to Commission Staff Information Request No. 01.54.

Staff Information Request No. 01.54. (Application page 55, Section 6.0, AFR Section 6.0.) Confirm that DNR mapped waterways are also included within the project area. If not, update the narrative to include DNR mapped waterways and include them in Table 6.0. Add a column to Table 6.0 identifying the Waterbody Identification Code of each waterway. The locations of DNR-mapped waterways can be found here: <https://data-wi-dnr.opendata.arcgis.com/>.

Wisconsin DNR Hydrography Streams and Rivers mapped waterways were also reviewed and mapped. Table 6.0 has been updated and provides the requested information. This updated table is attached at Appendix Z.

Additional Information in Response to Commission Staff Information Request No. 01.55.

Staff Information Request No. 01.55. (Application page 57, Section 6.0, AFR Section 6.0.) Confirm that the potential project disturbance area includes construction access areas, areas where excess topsoil would be spread, laydown yards, inverter pads, access roads, and collection lines.

Confirmed.

6.1. Waterway Permitting Activities

For each access road, collector circuit, or other facility directly affecting waterways; identify and number all waterway activities, based on Table 1 (Supplement to DNR Form 3500-53). For each stream or waterbody provide site photos, the width at the top of the bank, and the slope of the banks at the proposed activity location. For each stream affected by activities occurring below the ordinary high-water mark, note the water and sediment quality and the potential for either to be contaminated. For each activity, note if the waterway is defined as an Area of Special Natural Resource Interest (ASNRI) under the provisions of Ch. NR 1 Wis. Admin. Code. If a temporary bridge is required for construction, identify the type of structure to be used. Use Table 1 as the format for completing this information request.

As summarized in the Table 1 (Appendix U) Supplement to DNR Form 3500-53, and as shown on Figure 6.3.3, no access road or solar facility will impact any desktop identified waterway. The substation and O&M Building access road utilizes an existing farm driveway with an existing crossing of a waterway with associated wetland that is further described below in section 6.2. An engineering evaluation will be required to determine if any modification or replacement of that structure is required. If a permit is required, an application will be submitted to the DNR and USACE for approval.

The proposed collection route includes 23 waterway crossings. All of these crossings are included in the attached Table 1 Supplement to DNR Form 3500-53. The crossings are proposed to be completed using HDD underground boring.

Additional Information in Response to Commission Staff Information Request No. 01.56.

Staff Information Request No. 01.56. (Application page 58, Section 6.1, AFR Section 6.1.) This section states that the proposed collection routes include 23 waterway crossings. Confirm that this number includes all mapped DNR waterways. Update this number to include all DNR mapped waterways. All DNR waterways should be presumed navigable for state authority. A navigability determination can be conducted by DNR staff upon request of the applicant.

The proposed collection route includes 23 desktop delineated waterway crossings involving DNR waterways. All of these crossings are included in the Table 1 Supplement to DNR Form 3500-53, which is attached at Appendix EE.

Collection route crossings through DNR mapped waterways include 50 separate crossings based on individual circuits rather than a crossing combined as an individual corridor as represented in the Table 1 addendum. These crossings are not in addition to the 23 crossings mentioned above, where they often overlap. It is simply an additional dataset, which demonstrates collection route crossings through DNR mapped waterways. The crossings of all locations determined to be jurisdictional waterways following field review are proposed to be completed using HDD underground boring.

Additional Information in Response to Commission Staff Information Request No. 01.57.

Staff Information Request No. 01.57. (Application page 58, Section 6.1, AFR Section 6.1.) Confirm that proposed fences would not cross waterways. Additional steps may be necessary if fences cross navigable waterways.

Facility fencing will cross DNR mapped waterways at 11 locations. A formal navigability determination will be submitted in the coming weeks once field data is processed. At present, Badger Hollow estimates two may be determined to be navigable: crossings C-2 and C-7 on the new Figure WFC.1, attached at Appendix BB. Crossing design will be completed in consultation with DNR to balance stream access and site safety issues.

6.2. Wetlands

For each access road, collector circuit, or any other facility directly affecting wetlands; identify and number all wetland crossings. Insert this information in Table 1 as discussed above in directional order with the waterways.

6.2.1. Identify all wetlands on a map using data from the Wisconsin Wetland Inventory (WWI) and identify any other wetlands or changes to WWI boundaries based on delineations using all forms and information required by and in accordance with the January 1987 Technical Report Y-87-1 entitled, "Corps of Engineers Wetland Delineation Manual," including relevant guidance documents. Wetland delineation reports should be submitted to the DNR as a hardcopy with the application. Electronic copies of wetland delineation reports (in MS Word format, or similar) may be submitted on a CD.

Project Area wetlands are presented on Figure 6.3.1. This map represents wetlands in the WWI as improved by a desktop delineation performed for the Project Area. A wetland delineation report will be submitted to DNR following field delineation in the growing season.

6.2.2. Wetland Crossings

6.2.2.1. Describe the length of each wetland crossing.

6.2.2.2. For each crossing, identify wetland type using the WWI classification, and wetland type as identified by plant community type (floodplain forest, hardwood swamp, coniferous bog, coniferous swamp, open bog, calcareous fen, shrub swamp, alder thicket, shrub-carr, sedge meadow, shallow marsh, deep marsh, wet to wet-mesic prairie, fresh (wet) meadow, shallow open water communities, seasonally flooded basin).

6.2.2.3. Based on discussions with DNR staff during pre-application consultations, document the presence and percent cover of key wetland invasive species at each wetland crossing.

The Primary site layout avoids wetland impacts for all inverter pads, solar arrays, and access roads. Isolated sections of Alternate Arrays would require driven pile installation in wetlands based on the desktop delineation (see pg. 13 of updated Figure 6.3.3, attached at Appendix B). These are expected to be installed as driven piles, which would not constitute a wetland impact according to discussions with DNR. If this Alternate Array is included in the final design and excavation or fill is determined to be required for installing these arrays, applicable permits will be obtained from DNR and the USACE. Construction of Alternate Arrays would not impact wetlands for inverter pads or access roads.

One existing access road to an existing dairy operation is planned to be used for O&M building and Project substation access. This existing access road crosses a waterway and associated wetland. This crossing will be assessed to determine if the crossing will need to be upgraded. The preliminary review indicates that this road will be adequate, but if the final review determines the road needs to be upgraded, resulting in greater impacts to

the waterway or wetlands than currently exist, it will be added to the wetland permitting discussion. There are seven areas in four wetlands where perimeter fencing will cross a wetland. Conversations with the DNR has indicated that if these fences are constructed without poured foundations, using pounded posts, they will not be considered an impact, and therefore a permit would not be required. As the Project design continues to be updated, it will be determined if the fences can be constructed without footings or if footings will be required. In addition, a field wetland delineation will verify if these desktop delineated wetlands are wetlands. If the fences cannot be constructed without footings and the field delineation confirms these areas where the fencing is shown are wetlands, then Badger Hollow will obtain the proper authorization from the DNR and the U.S. Army Corps of Engineers.

The proposed collection route includes 44 wetland crossings. These crossings are included in the attached Table 1 Supplement to DNR Form 3500-53 (Appendix U). All of the collection line locations will be HDD bored under the wetlands/watercourses and no impact to wetlands or watercourses for the collection lines is proposed.

Additional Information in Response to Commission Staff Information Request No. 01.58.

Staff Information Request No. 01.58. (Application page 58, Section 6.2, AFR Section 6.2.) Confirm that the proposed alternate solar array panels would not impact wetland. The section states, "The site layout avoids wetland impacts for all inverter pads, solar arrays, and access roads." Page 13 of 13 of Figure 6.3.3 depicts panels within wetland.

In response to this request, the first sentence of 6.2.2.3 of the original CPCN Application should be removed and replaced with the following:

"The Primary site layout avoids wetland impacts for all inverter pads, solar arrays, and access roads. Isolated sections of Alternate Arrays would require driven pile installation in wetlands based on the desktop delineation (see pg. 13 of updated Figure 6.3.3, attached at Appendix B). These are expected to be installed as driven piles, which would not constitute a wetland impact according to discussions with DNR. If this Alternate Array is included in the final design and excavation or fill is determined to be required for installing these arrays, applicable permits will be obtained from DNR and the USACE. Construction of Alternate Arrays would not impact wetlands for inverter pads or access roads."

This correction is reflected in the above language.

Additional Information in Response to Commission Staff Information Request No. 01.62.

Staff Information Request No. 01.62. (Application page 58, Section 6.2, AFR Section 6.2.2.3.) Document the presence and percent cover of key wetland invasive species at each wetland crossing.

The presence and percent cover of invasive wetland species is addressed in the Wetland Delineation Report.

Additional Information in Response to Commission Staff Information Request No. 01.63.

Staff Information Request No. 01.63. (Application page 59, Section 6.2, AFR Section 6.2.) Describe how equipment would access wetland areas for fence construction. State whether equipment operation would disturb the ground or would take place on construction matting or during frozen ground conditions. Describe how wetland disturbed during fence construction would be restored to pre-existing conditions.

Fence installation equipment is relatively light-weight and work will be conducted on construction matting as needed. As such, ground disturbance will be minimized and dependent on site conditions at the time of each crossing installation. The contractor will determine if matting is needed to prevent soil disturbance at the time each crossing is constructed. Any disturbed areas (whether due to equipment or construction matting) will be graded to the original contours and reseeded with native wetland vegetation.

6.2.3. Sensitive Wetlands

Determine if any wetlands affected are considered sensitive including any wetlands in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code) including:

- 6.2.3.1. Cold Water Community as defined in § NR 102.04(3)(a), Wis. Adm. Code, including trout streams, their tributaries, and trout lakes*
- 6.2.3.2. Lakes Michigan and Superior and the Mississippi River.*
- 6.2.3.3. State- or federally-designated Wild and Scenic River.*
- 6.2.3.4. State-designated riverway.*
- 6.2.3.5. State-designated scenic urban waterway.*
- 6.2.3.6. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advanced delineation and identification study.*
- 6.2.3.7. Calcareous fen.*
- 6.2.3.8. State park, forest, trail or recreation area.*
- 6.2.3.9. State and federal fish and wildlife refuges and fish and wildlife management area.*
- 6.2.3.10. State- or federally-designated wilderness area.*
- 6.2.3.11. State-designated or dedicated natural area (SNA).*
- 6.2.3.12. Wild rice water listed in § NR 19.09, Wis. Adm. Code.*
- 6.2.3.13. Surface water identified as outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.*
- 6.2.3.14. Other sensitive wetlands are deep marsh, northern or southern sedge meadow not dominated by reed canary grass, wet or wet-mesic prairie not dominated by reed canary grass, fresh wet meadows not dominated by reed canary grass, coastal marsh, interdunal or ridge and swale complex, wild rice-dominated emergent aquatic, open bog, bog relict, muskeg, floodplain forest, and ephemeral ponds in wooded settings.*

This section addresses the requirements of Section 6.2.3 of the Application Filing Requirements, including all subsections, i.e., 6.2.3.1. through 6.2.3.14.

A review of GIS datasets indicates the Project Area does not contain the following special natural resource interests:

- Cold Water Community as defined in § NR 102.04(3)(a), Wis. Adm. Code, including trout streams, their tributaries, and trout lakes
- Lake Michigan, Lake Superior, or the Mississippi River.
- State- or federally-designated Wild and Scenic River.
- State-designated riverway.
- State-designated scenic urban waterway.
- Environmentally sensitive areas or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advanced delineation and identification study.
- Calcareous fens.
- State parks, forests, trails or recreation areas.
- State or federal fish and wildlife refuges or fish and wildlife management area.
- State- or federally-designated wilderness areas.
- State-designated or dedicated natural areas (SNA).
- Wild rice water listed in § NR 19.09, Wis. Adm. Code.
- Surface water identified as outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

When the Field Wetland Delineation is completed, each wetland will be assessed to determine if it is a sensitive wetland. Each wetland will be reviewed to ensure it does not contain any of the above listed special natural resources.

Other sensitive wetlands that will be identified if present in the Field Delineation are deep marsh, northern or southern sedge meadow not dominated by reed canary grass (*Phalaris arundinacea*), wet or wet-mesic prairie not dominated by reed canary grass, fresh wet meadows not dominated by reed canary grass, coastal marsh, interdunal or ridge and swale complex, wild rice-dominated emergent aquatic, open bog, bog relict, muskeg, floodplain forest, or ephemeral ponds in wooded settings.

Additional Information in Response to Commission Staff Information Request No. 01.59.

Staff Information Request No. 01.59. (Application, page 58, Section 6.2, AFR Section 6.2.) Describe how the wetland/waterway impacts could be avoided or minimized if the access road must be replaced.

Presumably Staff is referring to the existing access road to the dairy farm that is proposed to be used for the Project's O&M building and project substation. Wetland and waterway impacts could not be avoided if the access road must be replaced because no alternate access is available to this area from the north, west or south. Impacts will be minimized through a design that limits the upgrade to the minimum safe working standard for access roads based on the type and frequency of equipment access. The western crossing already minimizes impact by crossing the watercourse at a right angle. The eastern

crossing between two desktop-delineated wetlands shown in the CPCN Application will remain within the existing upland corridor and not require permanent impact to either wetland. Additionally, the existing crossing is an active service road for a dairy farm and experiences regular truck traffic for feed deliveries and milk pick-up. The landowner is confident that road will be suitable for solar farm use and not require upgrading. Further engineering analysis will be performed. Wetland impacts can be minimized if an improvement to the crossing is required. Some minimal wetland impacts may be preferable given aesthetic benefits of placing the O&M and project substation at this location, away from roads.

Additional Information in Response to Commission Staff Information Request No. 01.60.

Staff Information Request No. 01.60. (Application page 58, Section 6.2, AFR Section 6.2.2.1.) Provide information corresponding to DNR Table 1 on how wetland impact was calculated for the proposed road improvement and fences.

Access road impact was calculated for the total width and length of the required crossing (i.e. not subtracting out the area of the existing crossing, which is of similar area). Fence impact areas are based on the linear distance of fence crossing each wetland multiplied by a disturbance width of one foot for clearing along the fence and installing footings if required.

Additional Information in Response to Commission Staff Information Request No. 01.61.

Staff Information Request No. 01.61. (Application page 58, Section 6.2, AFR Section 6.2.2.2.) Provide wetland information using WWI classification and wetland type as identified by community type for each area of proposed fence crossing in wetland and for the proposed road improvement.

The existing road is in the relative vicinity of mapped WWI points to the north and the south. No information is contained within the WWI regarding classification and type for WWI points. The WWI identifies the points as "Wetland too small to delineate".

One area of Alternate fence extends into the edge of a WWI wetland with ID number 25423691429 and classified as E2Kg, emergent wetland as referenced in Table 1 Addendum, DNR Wetland/Waterway/Maps Location Table which is attached at Appendix FF.

6.3. Mapping Wetland and Waterway Crossings

For each facility (access road, collector circuit etc) in or adjacent to wetlands or waterways, provide three (3) maps, as described in Subsections 6.3.1 – 6.3.3, for each location on 11x17 inch paper, each with the same scale.

6.3.1. Recent air photo showing only the proposed facility (access road, crane path, collector circuit, substation etc.) crossing or adjacent to wetlands or waterways.

6.3.2. Topographic map showing the facility (road, crane path, collector circuit etc.) crossing or adjacent to wetlands or waterways.

6.3.3. Recent air photos showing the locations of the following items:

6.3.3.1. Facility crossing or adjacent to wetland or waterway.

6.3.3.2. Waterways.

6.3.3.3. WWI (as a transpicious layer).

6.3.3.4. Delineated Wetlands (clearly marked).

6.3.3.5. Hydric soils- (as a transpicious layer) indicated faintly to be used as secondary review, if needed.

6.3.3.6. Proposed temporary bridge locations (labeled to correlate with Table 1).

6.3.3.7. Locations for other Chapter 30 activities such as grading or riprap (labeled to correlate with Table 1).

This section addresses the requirements of Section 6.3 of the Application Filing Requirements, including all subsections, i.e., 6.3.1. through 6.3.3.

A detailed exhibit for each collector circuit boring and perimeter fence in/under wetlands or waterways is provided in Appendix B, as described in Subsections 6.3.1 – 6.3.3, for each location on 11 x 17 inch paper, each with the same scale.

The three exhibit sets include a recent aerial photo showing only the proposed facility crossing, a topographic map showing the facility (road, crane path, collector circuit etc.) crossing or adjacent to wetlands or waterways, and recent air photos displaying the locations of the following items; facility crossing or adjacent to wetland or waterway, waterways, WWI as a transpicious layer, delineated wetlands and hydric soils as a transpicious layer.

Additional Information in Response to Commission Staff Information Request No. 01.64.

Staff Information Request No. 01.64. (Application page 61, Section 6.3, AFR Section 6.3.) Include all DNR mapped waterways on Figures 6.3.1, 6.3.2, and 6.3.3.

NHD waterways have been replaced with DNR mapped waterways on updated Figure 6.3.1, Figure 6.3.2 and Figure 6.3.3, attached at Appendix B.

Additional Information in Response to Commission Staff Information Request No. 01.65.

Staff Information Request No. 01.65. (Application page 61, Section 6.3 and Appendix B, AFR Section 6.3.) In Figures 6.3.1, 6.3.2, and 6.3.3, label all waterways and wetlands

with the corresponding labels from Table 6.0. Differentiate by installation type (trench vs. directional boring). Show bore pit locations. Include all construction access areas.

Figure 6.3.1, Figure 6.3.2 and Figure 6.3.3 have been updated to include the Desktop Delineation reference labels from the initial Table 6.0. Table 6.0 has also been updated to include the DNR mapped waterways with the corresponding WBIC ID and size. These items are attached at Appendix B and Appendix Z (Table 6.0). Because all wetland and waterway crossings for cable infrastructure will be bored, no differentiation between trenched crossings and directional boring is possible on the Figures. Boring Pit locations have been added to the respective Figures.

6.4. Waterway/Wetland Construction Methods

6.4.1. Wetland Crossings – Construction Methods

6.4.1.1. Describe specific methods to be used for wetland crossings including location and methods of construction for:

6.4.1.1.1. Access Roads.

Access road construction is not anticipated to impact wetlands, so no crossings will be required.

6.4.1.1.2. Collector Circuits.

The proposed collection line intersects 44 wetland areas and 23 watercourse areas. These crossings are available in the Table 1 Supplement to DNR Form 3500-53 (Appendix U). Collector circuits crossing wetlands or water courses will be installed by means of horizontal directional drilling (HDD). Entry points and exit points will be positioned outside of the established wetland boundaries. Installation depths will be at least five feet below the bottom of the wetland or water crossing.

6.4.1.2. Describe the method of crossing including structure type if applicable.

As described above, collector system crossings will be bored, and no new structures are proposed for access road crossings.

6.4.1.3. Describe cleaning of machinery to prevent spread of invasive species.

HDD equipment, trenching equipment and backhoes will be power washed before mobilization to the site to prevent introduction of invasive species from off-site sources. The equipment will be manually cleaned of plant materials between work zones within the Project Site.

6.4.1.4. Describe the proposed area of land clearance and disturbance at wetland crossings and the types of equipment proposed for the work.

Land clearing is expected to be limited to hand clearing of vegetation to facilitate fence post installation.

6.4.1.5. Describe methods and discharge locations for site de-watering, and locations for stockpile of fill materials.

No wetland or other excavation de-watering activity is anticipated for construction or operation of the Project. Any stockpiles of fill will be placed in upland areas outside of established wetland boundaries.

Additional Information in Response to Commission Staff Information Request No. 01.67.

Staff Information Request No. 01.67. (Application page 62, Section 6.4.1.5, AFR Section 6.4.1.5.) Identify any practices the applicants would use during de-watering operations to ensure that growing crops are not damaged from excessive water.

Should localized, small scale dewatering be required for removal of accumulated rainfall in excavations, water will be discharged from pumps in a diffused manner away from active row crops. If discharge away from cropped areas is not feasible for any reason and damage does occur, surface soil conditions will be restored and owners will be compensated for crop damage as agreed upon by the parties.

6.4.1.6. In the case of underground construction for collector circuits, describe the proposed method for crossing the wetland. For boring operations, provide the size, depth and location of boring pits and the estimated amount of excavated materials that will result.

HDD methods will be utilized for underground construction of collector circuits crossing wetland or waterbodies. Engineering plan typical boring and pit details are presented in Appendix D. Boring pit locations will be a minimum of 10 feet from the edge of the wetland/watercourse and will be moved further away when appropriate to achieve the proper depth required for each bore.

6.4.1.6.1. Describe methods for de-watering of boring pit. Include a discussion of discharge locations and suspended solids standards for discharge water.

No de-watering activity is anticipated for construction of the boring pits based on regional water table information gathered through the geotechnical evaluation.

6.4.1.6.2. Identify contingency plans for bore refusal and frac-outs if directional boring is proposed. Provide scaled pre and post- Project diagrams for all wetland crossings including top view and cross section or side views.

Appropriate erosion controls will be used between the bore pit and the resource. A standard frac-out plan is included in Appendix D.

Additional Information in Response to Commission Staff Information Request No. 01.66.

Staff Information Request No. 01.66. (Application page 62, Section 6.4, AFR Section 6.4.) Include all construction access in the discussion of waterway/wetland construction methods. The application states wetlands and waterways would be directionally bored

and entry points and exit points would be positioned outside of wetland boundaries. It is unclear how equipment would access entry and exit points.

Construction equipment will access boring locations via planned collection routes. Wetlands will be avoided when possible but to the extent they need to be crossed, matting will be used.

6.5. Erosion Control and Storm Water Management Plan

Describe erosion control and storm water management measures to be utilized, as appropriate. If the Project will involve land disturbance in excess of 1 acre, the applicant's request for permits must include coverage under the Construction Site Storm Water Runoff Permit from DNR under Wis. Admin. Code § NR 216. The applicant will be required to submit a Construction Project Consolidated Permit Application (i.e., Notice of Intent or NOI) to the DNR to request permit coverage after developing an Erosion Control and Storm Water Management Plan describing the best management practices that will be used on-site for erosion control and post-construction storm water management. The plan, by design, must meet the applicable non-agricultural performance standards of Chapter NR 151, The DNR-approved erosion and sediment control and post-construction technical standards and NOI Form are available on the DNR Storm Water Program web.

Badger Hollow has prepared a draft Erosion Control and Storm Water Management Plan (Plan) describing the best management practices that will be used on-site for erosion control and post-construction storm water management, included in Appendix L. Once a Contractor is selected and prior to construction, the Plan will be finalized, and coverage will be obtained under the Construction Site Storm Water Runoff Permit from the DNR under Wis. Admin. Code § NR 216. The applicant will be required to submit a Construction Project Consolidated Permit Application which will meet the Technical Standards used by the DNR.

6.5.1. *Erosion Control Methods and Materials*

Describe the types of erosion control methods that will be used during Project construction to protect disturbed areas. Include where applicable:

6.5.1.1. *Soil and slope stabilization.*

Temporary or permanent erosion prevention practices should be initiated immediately (end of the same working day) after construction activity disturbing soil is anticipated to temporarily or permanently cease for a period of 14 calendar days. The application of temporary or permanent erosion control management practices should be completed prior to the 21st day of temporarily or permanently ceasing construction activity in an area of the Project.

Areas of steep slope (slopes of 20 percent or more) which cannot be avoided during construction must have temporary or permanent erosion prevention practices initiated immediately (end of the same working day) after construction activity disturbing soil in an area is temporarily or permanently ceased for a period exceeding seven calendar days. The application of temporary or permanent erosion control management practices should

be completed prior to the seventh day of the temporary or permanent cessation of construction activity in a steep slope area of the Project.

6.5.1.2.Seeding and mulching.

Hydroseed will likely be used to minimize soil loss within the construction areas. Hydroseed should help to minimize the transportation of soil from water or wind and aide in the establishment of temporary or permanent vegetation. All soil should be prepared prior to seeding. Hydroseed should be applied at a minimum of 1,800 lbs per acre from two directions to prevent shadowing.

6.5.1.3.Matting, tracking pads, silt fences, stockpile protection.

After clearing and grubbing, operators should strip and stockpile topsoil material for reapplication on future permanent pervious surface areas. During development, grading and utility construction of the subsoils will be compacted as necessary for construction using typical excavation techniques. During final grading, reapplication of the preserved topsoil should be completed by a wide-pad dozer and other equipment to minimize compaction of the topsoil material. Operators should restrict vehicle and equipment use to avoid soil compaction where feasible; or employ techniques such as ripping the soil for decompaction following topsoil placement and prior to reseeding or other restoration activities. Stockpile locations will be determined in the field. No fill will be placed in ditches, surface waters, or wetlands.

Silt fence will be used to minimize sediment discharge, capture sediment in suspension, and minimize sedimentation off-site. Silt fence should be machine sliced and installed with wood posts spaced six feet apart. Perimeter silt fence should be installed prior to any grading activity.

Rock pads and aggregate road base will be used to minimize or prevent sediment track-out from construction site exits to paved surfaces and prevent the material from being washed into surface waters or stormwater inlets. Rock pads will be installed at site exits prior to grading activity.

6.5.1.4.Dewatering-related erosion and sediment control.

Dewatering of turbid water (water that is visibly cloudy or brown in color) should be discharged via pump and hose or overland flow (via temporary ditch or grade cuts) to a temporary sediment basin for pretreatment. Riprap aprons (energy dissipation) should be used for discharge locations. If riprap is not used, an alternative form of energy dissipation should be used to prevent scour and re-suspension of soil at the discharge point of the hose. If discharge to a temporary sediment basin is not feasible, the use of dewatering dumpsters, dewatering bags, or other prefabricated product should be used. The use of rock checks, erosion control blanket, and sumps or traps shall be considered for overland flow dewatering. After the use of BMPs, the water could be discharged through a vegetated buffer and energy dissipation. The discharge of water from the site should be visibly clear in appearance. The discharge of accumulated water should not: contain oil, grease, a sheen, odor, or concrete washout (use an oil-water separator or suitable filtration device if material is found); adversely impact adjacent properties with

water or sediment; adversely impact waters of the state; cause erosion of slopes and channels; cause nuisance conditions; or contribute to inundation of wetlands.

Temporary stormwater management practices are anticipated due to contiguous 10-acre drainage areas discharging to a common point throughout the site. Temporary sediment basins may be used on the site and will meet DNR technical standards. These basins will be removed upon completion of construction.

6.5.1.5.Channel protection.

Ditch checks should be installed as needed to minimize scour, divert clean water, and to provide conveyance of clean water in areas of concentrated flows. Ditch checks will intercept flow along the ditches to reduce velocity in these waterways and trap sediment.

6.5.1.6.Any other appropriate erosion control measures.

An undisturbed buffer zone should be preserved where feasible for surface waters on-site including, but not limited to, Livingston Branch and Pecatonica River. The use of linear sediment controls will be installed upgradient to provide sediment control and delineate the limits of construction in the vicinity of surface waters. The following activities are prohibited from taking place within the buffer area: placing stockpiles or sediment basins, disturbing vegetation, placing construction material, and storing gas, oils, or other potentially polluting material. In areas where undisturbed buffer zones are infeasible, redundant sediment control BMPs will be installed.

6.5.1.7.Details and typical section drawings of all the erosion control methods utilized.

Typical construction notes as well as erosion and sediment control BMP locations can be found in the SWPPP in Appendix L of this document.

6.5.2. Erosion Control Measure Site Plan

Include a site plan view and drawings illustrating: (some typical drawings may be appropriate after consultation with the DNR)

6.5.2.1.Construction site boundary.

The Project is located directly south of the Village of Cobb and the Village of Montfort. The nearest intersection is County Road B and Drinkwater Road. The Project Area is bordered on the north by Harms Road, on the south by Enloe Road, on the west by Ebenezer Road, and on the east by County Road J. The site Vicinity Map can be found in the SWPPP in Appendix L of this document.

6.5.2.2.The location of all erosion control measures.

Preliminary Erosion and sediment control BMP locations are available in the SWPPP (Appendix L).

6.5.2.3. Location of stockpiled soil.

Stockpile locations will be determined in the field and will be within the Project boundary. Construction notes regarding stockpiled material are available in the SWPPP (Appendix L).

6.5.2.4. Vehicle and equipment access sites.

Rock pads will be installed at site exits prior to grading activity. Locations of vehicle and equipment access sites are available in the SWPPP (Appendix L).

6.5.2.5. Areas of disturbance.

The proposed Project will disturb an estimated 2,655 acres for the construction of solar panels, an associated collector system, access roads, and security fencing around the perimeter. The proposed construction activities are provided in the Project Area maps in the SWPPP (Appendix L).

6.5.2.6. The drainage area configuration.

The Project Area drains into six primary watersheds; Big Rock Branch-Blue River, Black Hawk Lake-Otter Creek, East Pecatonica River, Village of Cobb, Livingston Branch, and Crow Branch-Platte River. The Project Area drainage maps are available in the SWPPP (Appendix L).

6.5.2.7. Surface water diversion measures.

Due to the proposed low impact design (LID), no major changes to the existing grades or flow direction will occur during construction. The water will leave the Project Area in the same manner as existing conditions, although flows will be reduced within the proposed meadow areas.

6.5.2.8. Topography.

The slope and terrain of the Project Area generally consists of moderate slopes (1-5%) and includes areas of steeper slopes along the creeks. A USGS Topographic Map is available in the SWPPP (Appendix L).

6.5.2.9. Existing floodplains and wetlands.

The Project Area contains Zone A (1% annual chance of flooding) and 0.2 percent annual chance FEMA flood hazard areas. The base hydrology map containing FEMA flood hazard areas and NWI wetland locations are available in the Drainage Study (Appendix L). The Project is not planning solar array construction in flood plain areas.

6.5.2.10. Location of trees and unique vegetation.

A Landcover Map is available in Figure 4.1.6.4 and the Drainage Study (Appendix L). Forest is present within the Project Area. Final layout will dictate if tree removal is necessary during clearing and grubbing. According to the USGS SSURGO Dataset, there does not appear to be any unique plant communities within the Project Area that would require additional control measures.

6.5.3. Sequence of Erosion Control Measures

List and give a detailed description of the sequence of erosion control measures that will occur (i.e. placed, relocated, and replaced) during all phases of construction including:

6.5.3.1. Clearing and grubbing.

The first phase of the Project will include pre-construction identification of clearing and grading limits, sensitive areas, and wetlands.

6.5.3.2. Material installation.

Sediment and erosion controls will be installed as soon as practicable (end of same working day) following any ground-disturbing activities that are anticipated in accordance with Project plans.

6.5.3.3. Channel construction.

No channels are required for Project development.

6.5.3.4. Revegetation processes.

Uniform perennial vegetation cover at 70% of pre-construction conditions is required to achieve final stabilization. Other requirements include the completion of soil disturbing activity, construction of permanent stormwater treatment systems, the removal of temporary synthetic BMPs, and restoration of construction activity areas.

6.5.3.5. Seeding and mulching/matting.

Temporary or permanent erosion prevention practices, such as hydroseeding, should be initiated as soon as practicable (end of the same working day) after construction activity that disturbs soil is anticipated to temporarily or permanently cease for a period of 14 calendar days. The application of temporary or permanent erosion control management practices should be completed prior to the 21st day of the temporary or permanent cessation of construction activity within the Project Area.

6.5.4. Off-Site Diversion Methods

6.5.4.1. Identify off-site contributions of water affecting Project construction sites.

The overall watershed encompasses an area of approximately 51 square miles starting north of the Project boundary. Waterbodies that flow through the Project Area include the Pecatonica River and Livingston Branch and various unnamed tributaries.

6.5.4.2. Methods of controlling off-site water contributions.

Hydrologic concerns will be addressed through detailed engineering design. No major changes to the existing grades or direction of flow are proposed, so the water will leave the Project Area similarly to existing conditions. However, Badger Hollow flows will be reduced as the proposed meadow areas will lessen the volume of runoff from the Project Area.

6.5.4.3.Site plan indicating:

6.5.4.3.1.Where the off-site water is originating from.

The origins of off-site water are provided in the SWPPP Drainage Map (Appendix L).

6.5.4.3.2.Locations of diversion measures on-site.

No diversion measures are proposed as there are no significant alterations to the existing grades or flow direction. The water will leave the Project Area in the same general manner as it does under existing conditions, though the flows will be reduced due to the proposed meadow conditions.

6.5.5. Provisions for Inspection and Maintenance

Document the provisions for:

6.5.5.1.The regular inspection of all erosion control efforts per the requirements of Wis. Admin. Code § NR 216.

Construction activity and all support activities must be inspected within the parameters of the schedules provided in the SWPPP (Appendix L). Inspections should be documented within 24 hours after completing the field inspection and available in paper or electronic form on-site. If the inspection does not report incidents of non-compliance, the report should contain a certification that the Project is in compliance with the SWPPP and CGP.

6.5.5.1.1.Identify who will perform the inspections.

The inspector will be an experienced person versed with the requirements of the SWPPP and the DNR WPDES Construction General Permit, the DNR Technical Standards, and that is familiar with the Project site. The inspector will be delegated by the owner and listed in Section 5.7 of the SWPPP (Appendix L).

6.5.5.1.2.Specify when the inspections will occur.

When the construction activity is on-going or permanently stabilized but active in other areas of the Project, inspections will occur weekly and within 24 hrs of a rainfall event equal to or exceeding 0.5”.

Rainfall totals should be measured with an on-site rain gauge. If a rain gauge is not feasible, the rainfall data should be observed from the National Weather Service website for the nearest local forecast office. The internal environmental inspector and their delegate (if applicable) will do their duties to monitor for rain events that will require inspections.

6.5.5.1.3.Any special circumstances initiating an inspection.

If construction is suspended due to frozen ground conditions, the inspection may be ceased. Inspections shall resume within 24 hrs prior to construction startup, or 24 hrs after a runoff event occurs, whichever comes first. All exposed soils must have permanent or temporary stabilization applied before construction stops or frozen conditions prevent further construction. The DNR does not recognize frozen conditions as soil stabilization. If temporary stabilization is needed after frozen conditions or after a

snow fall, straw or hay mulch should be used. A dormant seeding with winter wheat could be applied but the use of hydromulch or permanent seeding should not be applied.

6.5.5.2.The regular maintenance of all erosion control efforts.

All non-functional BMPs should be repaired or replaced within 24 hrs after discovery of notification or as soon as field conditions allow prior to the next anticipated storm event. Perimeter sediment control BMPs or temporary sediment basins that are half full of sediment or flattened to half its height should be cleaned out within 24 hours of inspection or notification of maintenance. All inlet protection BMPs, conveyances, or surface waters that contain sediment deposition or accumulation should be cleaned out within 24 hrs of inspection or notification. If soils are exposed during removal or cleanout, they should be stabilized, as needed. For all site exit locations or adjacent streets with accumulated or tracked sediment, rock should be top-dressed and maintained within 24 hrs of inspection or notification. Paved surfaces should be scraped or swept by the end of the same working day as discovery or notification and prior to the next anticipated rain event. Additional sweeping may be required to maintain public safety or prevent washing from forecast rains.

6.5.5.2.1.Identify who is responsible for the maintenance.

The person responsible for BMP maintenance will be a qualified person versed in the requirements of the SWPPP and DNR WPDES Construction General Permit as well as familiar with the Project. The maintenance person(s) are delegated by the owner and listed in Section 5.7 of the SWPPP (Appendix L) and may be the qualified person, the environmental responsible person, or a person directly supervised by the person responsible for the environmental compliance at the Project site.

6.5.5.2.2.Specify corrective actions, if site is not maintained according to provisions.

If inspections identify that the site is not maintained according to provisions, corrective actions will be taken to repair, replace, or add additional BMPs as appropriate.

6.5.6. Post Construction Storm Water Management

A drainage study for the Project is included in Appendix L and details the calculations discussed in section 6.5.6.

Additional Information in Response to Commission Staff Information Request No. 01.68.

Staff Information Request No. 01.68. (Application page 70, Section 6.5.6, AFR Section 6.5.6.) Identify a procedure for determining if runoff or erosion caused by the facility is affecting crop yields on adjacent farmland, how the impact would be mitigated, and how the farmer would be compensated.

As stated in the CPCN application, the facility's ground cover plan should improve runoff performance, so effects on adjacent farmland are not anticipated. In the unlikely event that it does happen, Badger Hollow expects an adjacent farmland owner would bring the

issue to the Badger Hollow's attention or the construction management team would observe the issue and correct it. In such an instance, Badger Hollow would propose market rate crop compensation to the adjacent landowner, on the same terms as in the solar lease and easement agreements with participating landowners. If this solution is not acceptable to the landowner, Badger Hollow would attempt to negotiate a mutually agreeable solution.

6.5.6.1. Develop a storm water management plan per the requirements of § NR 216.47, Wis. Admin. Code

A stormwater plan will be developed in accordance with Wisconsin statutes and guidelines as part of the final site design. The stormwater plan will incorporate final panel configurations and appropriate best management practices as described below.

6.5.6.1.1. Where applicable, describe and provide details on the best management practices that will be used to meet the performance standards of s. NR 151.12, Wis. Admin. Code

To meet the Wisconsin Administrative Code NR 151.12 post-construction performance standards for new development and redevelopment projects, a low impact development (LID) approach is proposed. The management plan proposes using a vegetated filter under the proposed panel arrays and throughout the Project Area.

The proposed Project layout minimizes impervious surface coverage and will consist of solar panels, gravel roads, and other electrical equipment. Solar panels have a unique, fully-disconnected impervious surface runoff characteristic that is unlike buildings or roads. The runoff generated from the solar panels will flow to the edge of the panels and be allowed to drip onto the pervious surface below.

To reduce the potential for erosion and scour at the dripline of the panels, the vertical clearance between the panels and the ground will be minimized and shall be less than 8 feet maximum elevation. Also, erosion and sediment prevention and control measures have been specified and will be used during Project construction.

A native meadow groundcover will be used throughout the site. In areas under the panels, this will function as a filter and act as a permanent BMP and will capture runoff, sediment, and other pollutants. In addition to stormwater benefits, the native groundcover will reduce vegetation management costs during Project operations, reduce snow drifts, improve drought resistance and create and conserve pollinator and wildlife habitat.

Prior to construction, a site assessment, including soil analysis, a review of the final layout, and construction schedule will be used to identify an appropriate seed mix. If timing allows, immediately prior to construction, the Project will test for herbicide levels and survey crop history to identify a ground preparation approach, which could include minor tillage and re-application of corn stalk and management of pre-emergence herbicide issues.

During construction, as facilities installation completes in disturbed areas, an initial seeding will take place to provide for quick re-vegetation to support erosion control during construction. In areas where existing cover is already established (e.g., swales, pasture or, alfalfa), no-till drilling and/or selective application of herbicide for weed control are possibilities. Some areas could be enhanced with pollinator seed mixes after array installation.

An initial establishment period starting at commercial operations is expected. In the first year, at least two mowings would likely be required to control annual weeds from going to seed, and to allow native perennials to establish with minimal competition. In the second year, a single mowing in the spring would likely manage annual weeds. If found, large patches of aggressive invasive weeds would be targeted, potentially with herbicide treatment. In areas around the arrays, a second mowing later in the season would be used selectively to prevent overgrowth of species that could potentially obstruct sunlight from reaching the panels.

Starting at the third year and throughout the life of the Project maintenance is expected to be limited to a single site-wide annual mowing either during early spring or fall, depending on specific conditions. Annual mowing will prevent woody species from getting established and will reduce the risk of wildfire. Additional targeted mowings to prevent overgrowth would be used as needed.

The Project Area is predominately comprised of agricultural row crops on C soils. Based on the SCS Curve Number method, the overall curve number for the Project Area is 85. The proposed meadow conditions will have a curve number of 71. Changing the landcover to the meadow condition will greatly reduce the amount of runoff from the Project Area.

Infiltration

The Wisconsin Administrative Code NR 151.12 requires that non-residential developments infiltrate adequate runoff volume, such that the post-construction infiltration volume is 60% or more of the pre-construction infiltration volume. Existing and proposed infiltration rates were calculated for the entire Project Area using the P8 Urban Catchment Model program. A variety of curve numbers were used to represent the existing runoff conditions for each subwatershed within the Project Area. For the proposed conditions, a curve number of 71 was used to represent the HSG Type C meadow vegetation. The curve number of 71 was weighted to include the proposed disconnected impervious surfaces consisting of aggregate access roads, transformers, and a substation and was used throughout the modelling applications that follow in subsequent sections. Due to the HSG Type C soils present in the Project Area, an infiltration rate of 0.2 inches/hour was incorporated into the P8 model for existing and proposed conditions.

Peak Discharge

The Wisconsin Administrative Code NR 151.123 requires that pre-construction runoff rates are maintained or reduced in post-construction conditions for 1- and 2-year 24-hour storm event. The existing and proposed runoff rates were calculated for the entire Project Area using HydroCAD software. The Atlas-14 1- and 2-year 24-hour precipitation values for the Project Area are 2.67 inches and 3.03 inches, respectively. For the existing conditions, a variety of curve numbers were used to represent the agricultural row crop runoff conditions for each subwatershed within the Project Area. Tables 4 and 5 below compare offsite flows between the existing and proposed conditions for the 1- and 2-year events, respectively.

Currently, water leaves the Project Area in a predominantly southern direction. No major changes to existing grades or direction of flow are proposed; therefore, water will likely leave the Project Area as it does currently. However, flows will be reduced under the proposed conditions. The Project's design will improve runoff compared to existing field conditions, offering a marked environmental benefit.

Total Suspended Solids

The Wisconsin Administrative Code NR 151.12 requires that new development reduce the total suspended solids (TSS) load by 80%. Per State requirements, the TSS removal from the Project Area overland flow was calculated for the entire Project Area using the P8 Urban Catchment Model program. For the existing conditions, a curve number of 85 was used to represent the HSG Type C agricultural vegetation. The runoff generated from the solar panels will flow to the edge of the panels and be allowed to drip onto the pervious meadow vegetation below.

Additional Information in Response to Commission Staff Information Request No. 01.69.

Staff Information Request No. 01.69. (Application page 70, Section 6.5.6.1.1, AFR Section 6.5.6.1.1.) Describe how pollinator seed mix is different from native meadow groundcover mix. Pollinator species are recommended to benefit the native pollinators on the landscape.

Badger Hollow interprets "pollinator seed mix" to mean a mix that is selected to include various species of flowering plants that would create habitat for various pollinator species. A pollinator seed mix should select a variety of flowering plants so as to provide flowers for pollinating insects to pollinate throughout the growing season. A native meadow groundcover mix would also include flowering species, but at a lower rate.

Additional Information in Response to Commission Staff Information Request No. 01.70.

Staff Information Request No. 01.70. (Application page 70, Section 6.5.6.1.1, AFR Section 6.5.6.1.1.) Discuss whether grazing by farm animals or controlled burns could be incorporated into the vegetation management plan.

Invenergy is a member of the Solar Grazing Association, primarily for developments in the eastern United States. Badger Hollow is evaluating grazing livestock, particularly sheep, at the project in a limited area. The Badger Hollow team has been in contact with the nearby Vernon Electric Company that successfully grazes about 11 acres with 25 sheep in their small solar array, as well as the Eau Claire Energy Cooperative that grazes 5 acres with 8 sheep in their small solar array. Both report the arrangement is working out favorably. A Badger Hollow landowner and grazier has offered to do further research on the subject. Based on Invenergy's experience developing solar energy projects in other areas, sheep seem to be the most viable common farm animal that could be used for grazing within the solar array. Goats are not an appropriate option because they can climb on generating equipment, potentially damaging it, and cows are too large and have a tendency to lean on things to scratch, which could damage generating equipment. Badger Hollow is evaluating whether it can find a farmer to supply and manage sheep in a suitable manner and whether the project can connect the farmer to markets.

Controlled burning is not being considered due to the potential impact to the electrical facilities.

Additional Information in Response to Commission Staff Information Request No. 01.71.

Staff Information Request No. 01.71. (Application page 70, Section 6.5.6.1.1, AFR Section 6.5.6.1.1.) Provide an example of a large solar facility where meadow groundcover was successfully established and provide details from its vegetation management plan.

The 100MW North Star Solar Project located in Chisago County, Minnesota achieved commercial operation in 2017. The vegetation management plan approved by the Minnesota Public Utilities Commission and implemented at the project is attached at Appendix GG. This project is generally considered to be a successful example of meadow groundcover within a large solar facility.

Additional Information in Response to Commission Staff Information Request No. 01.72.

Staff Information Request No. 01.72. (Application page 70, Section 6.5.6.1.1, AFR Section 6.5.6.1.1.) Provide a vegetation management plan for the project that includes:

- a. Identification of shade tolerant and sun-tolerant plant species that would thrive under, as well as between, the solar panel arrays.*
- b. Methods of weed control at the fence boundary and under the panels. It is critical that weeds do not impact surrounding crop fields. Explain whether mowing the 3,500-acre facility twice a year and occasional spot herbicide application is sufficient to prevent woody species from growing.*
- c. Protocols for erosion control, after the facility is built, but prior to the establishment of the meadow groundcover, or in case the meadow groundcover is*

not successfully established. The solar facility would be almost a permanent fixture surrounded by cropland. It is important that valuable prime farmland topsoil is not washed off-site and that channels are not formed that concentrate runoff.

- d. *Methods for maintaining soil health so that the land can be restored to agricultural use when the facility is decommissioned.*

Badger Hollow has engaged Applied Ecological Services to prepare a detailed vegetation management plan which aligns with the project goals and the interests of stakeholders, including the agricultural community. Maintaining and improving soil and water health are priorities in the development of the plan.

Preparation of the detailed vegetation plan is ongoing and includes creation of a base map to document existing vegetation cover by crop type, soil type, topographic contours and hydrology. These attributes will be analyzed to determine suitable ground preparation and creation of suitable planting overlays for each of the different parts of the future solar farm (e.g., beneath the solar panels, between solar panel rows and buffer areas). This information will inform a vegetation cover and management plan matched to the site's biophysical attributes. The plan will include input from local and state-level stakeholders, including regulatory agencies. The draft vegetation plan will be completed by September 1, 2018, followed by stakeholder engagement and input with a final vegetation plan by November 1, 2018. The final vegetation plan will also be shared with the regulatory agencies. This schedule aligns with farmer crop management needs for the upcoming growing season and will meet Badger Hollow's proposed construction schedule. Additional information to address Commission staff's specific comments follow. Commission staff's comments are repeated in bold italics followed by Badger Hollow's response.

- a. *Identification of shade tolerant and sun-tolerant plant species that would thrive under, as well as between, the solar panel arrays.* Shade and sun tolerance is being considered in the development of seeding plans. A mix of prairie and savanna species is expected to be a good fit for the available sunlight on the project.

Because native savanna is a sun and shade environment, native savanna species are well adapted to thrive in either partial shade or sun. It is anticipated that sufficient ambient and reflected light will be available for the selected prairie species. Shorter statured species are particularly well adapted to this kind of refracted light and are compatible with solar generating facilities that will seek to avoid shading from the prairie species. Even though native prairies are often present in the full sun environment, shorter statured species exist and compete in the shade of much taller, often dense, companion species.

- b. *Methods of weed control at the fence boundary and under the panels. It is critical that weeds do not impact surrounding crop fields. Explain whether mowing the 3,500-acre facility twice a year and occasional spot herbicide application is sufficient to prevent woody species from growing.* Effective weed control begins with proper ground preparation to minimize competition from weeds. The

vegetation plan will identify previous crops. Badger Hollow will implement the appropriate ground preparation methods to minimize soil disturbance which will also minimize bringing new weed seeds to the surface. This process is the same for the entire project area or specific areas such as along fence boundaries and under panels.

Even with proper ground preparation, some weed growth is inevitable especially during the first two seasons while the native perennials are establishing. Mowing during the first two years reduces competition for native perennials by preventing annual weeds from going to seed. Areas with equipment restrictions such as fence boundaries and under solar panels will have slightly different management needs because of mowing equipment restrictions. Badger Hollow will perform all mowing with a batwing mower that would allow for mechanical mowing under panels because the panels rotate on a single axis. Care will be taken to ensure the mower does not contact the panels. Because the panels rotate during the day, mowing will be timed to ensure that there is adequate clearance for the mower. Woody and weedy vegetation may need to be controlled with herbicide or smaller equipment as an alternative.

- c. *Protocols for erosion control, after the facility is built, but prior to the establishment of the meadow groundcover, or in case the meadow groundcover is not successfully established. The solar facility would be almost a permanent fixture surrounded by cropland. It is important that valuable prime farmland topsoil is not washed off-site and that channels are not formed that concentrate runoff.* The approach is to limit soil disturbance through no-till or light till methods of seed installation. Areas of erosion control concerns are not expected to be a large factor as a result. Selective use of cover crops will also be included to the seeding areas that will provide rapid cover in erodible areas. Detailed vegetation management plan base maps will identify erodible soils that would require cover crops.

In some fields, existing grass swales are present and are effective at preventing erosion and are intended to be left in place. If the existing swales are disturbed, over-seeding with native seed with a no-till drill will enhance these areas in the future without impacting this existing BMP.

Temporary erosion control BMPs and monitoring will be coordinated between installation of BMP practices, final vegetation installation, and temporary BMP removal after final stabilization will be coordinated to maintain compliance with the SWPPP. Temporary erosion control during construction will be the responsibility of the general contractor. This Temporary erosion control will include silt fence, and may also include temporary ditch checks.

- d. *Methods for maintaining soil health so that the land can be restored to agricultural use when the facility is decommissioned.* Please see response to request 01.12 for more information responsive to this identical question.

6.6. Materials Management Plan

Describe materials management methodology. Applicants may opt to refer to the company's standard Materials Management Plan to meet most of these requirements, though some form of supplemental information on project-specific elements may be required. The following checklist serves as guidance in the completion of a Materials Management Plan necessary to meet the requirements of the Chapter 30 and NR 216 Permits. The Materials Management Plan should contain information on all of the following components, where applicable.

Construction materials for the Project will be handled as described in the following sections, and in the Erosion Control and Storm Water Management Plan included in Appendix L.

6.6.1. *Haul Routes*

6.6.1.1. Indicate how and where hauled materials will be routed, including:

6.6.1.1.1. Inbound materials

6.6.1.1.2. Outbound materials

6.6.1.1.3. Clean fill materials

6.6.1.1.4. Contaminated materials

6.6.1.1.5. Others

6.6.1.2. Alternate locations if necessary.

6.6.1.3. Include a haul route diagram indicating haul route locations.

This section addresses the requirements of Section 6.6.1 of the Application Filing Requirements, including all subsections, i.e., 6.6.1.1. through 6.6.1.3.

The primary haul route for construction materials into the Project Area will be USH 18 and STH 80. County and Township roads within the Project Area will be used for inbound and outbound traffic as described in Sections 2.3.5 and 2.3.6. Figure 6.6.1 in Appendix B shows the proposed haul routes.

Imported fill material is not expected to be required for Project construction, but if required it would follow the same haul routes as other materials. It is not anticipated that contaminated materials will be encountered during Project construction. If contaminated materials are discovered, they will be handled in compliance with state and local regulations.

6.6.2. *Stockpile Areas*

6.6.2.1. List and describe:

6.6.2.1.1. Material to be stockpiled.

6.6.2.1.2. Where will material be stockpiled on-site.

6.6.2.1.3. Measures to protect stockpiled areas, if applicable.

6.6.2.2. Provide a plan view diagram indicating stockpile area locations.

This section addresses the requirements of Section 6.6.2 of the Application Filing Requirements, including all subsections, i.e., 6.6.2.1. and 6.6.2.2.

Construction material stockpiles will be located at the construction laydown area as identified in Section 2.4.2

Soils stripped or removed during access road construction, grading, and excavation, will be stockpiled near the removal location and used as fill on site, or thin spread prior to permanent seeding. Topsoil stripped from the laydown area will be stockpiled adjacent to the laydown area, and replaced upon reclamation.

Sediment control measures will be installed prior to any topsoil removal or grading, and will be inspected and maintained in accordance with the Erosion Control and Stormwater Management Plan (Appendix L)

6.6.3. Equipment Staging Areas

6.6.3.1. Where equipment will be stored on-site

Equipment will be staged in the construction laydown area and in solar array areas where construction activities are imminent or ongoing.

6.6.3.2. Include a plan view of equipment storage areas on-site

Page one of Appendix D includes an image of a typical laydown area configuration, including equipment and material storage areas, along with parking and office space.

6.6.3.3. Spill control and kits on-site

Spill control kits will be stored at the Project laydown area and within construction vehicles.

6.6.4. Field Screening Protocol for Contaminant Testing

If contaminated materials (i.e. soil) are encountered on-site, indicate:

6.6.4.1. How will the materials be screened.

6.6.4.2. Where will the materials be tested.

6.6.4.3. What protocols will be followed.

6.6.4.4. How work will be impacted.

This section addresses the requirements of Section 6.6.4 of the Application Filing Requirements, including all subsections, i.e., 6.6.4.1. through 6.6.4.4.

It is not expected that any contaminated materials will be encountered on-site. If suspected contaminated soils or other materials are identified, a qualified firm will be contacted to test suspected materials. If contamination is confirmed, the contaminated materials will be treated and/or disposed of according to the appropriate protocol for the situation encountered and the relevant regulations. The DNR will be contacted as required under state law.

If contamination is encountered, work would be suspended in the immediate area of contamination until the appropriate remediation measures have been completed.

6.6.5. Estimated Types, Concentrations and Volumes of Contaminated Materials

If contaminated materials are known to exist on-site, list and describe:

6.6.5.1. The type of contaminant.

6.6.5.2. Where the contaminant is located on-site.

6.6.5.3. Media in which the contaminant is located within (i.e. soil, water, etc.)

6.6.5.4. The estimated concentration of the contaminant.

6.6.5.5. The estimated volumes of the contaminant.

This section addresses the requirements of Section 6.6.5 of the Application Filing Requirements, including all subsections, i.e., 6.6.5.1. through 6.6.5.5.

The Project Area is predominately comprised of agricultural land. Hazardous materials associated with farming operations, such as fuel and agricultural chemicals, may be stored on leased properties, but will be contained in and near farm buildings (e.g. fuel tanks), and will not be disturbed during Project construction. Other than materials used in farming operations, no hazardous materials are expected to be present in the construction area.

6.6.6. Methods for Dewatering of Excavated Materials

If free water is found present in excavated materials, list and describe:

6.6.6.1. What methods will be used to correct the situation (i.e. how will water be removed).

6.6.6.2. Where these methods will take place on-site.

Due to the well-drained soils and shallow excavation depths on site, significant dewatering is not expected during construction. If dewatering is required due to intrusion of rainwater, surface runoff, or groundwater into trenches or other excavations, dewatering will use small pumps and discharge locally applying sediment control as described in section 9.7 of the draft SWPPP. It is expected that these dewatering activities would be covered under the Project's General Construction Stormwater Permit.

6.6.7. Estimated Volumes of In-channel and Upland Excavated Materials

6.6.7.1. Volume of Dredged Materials (cubic yards)

6.6.7.1.1. Excavation from bed and bank of waterway.

6.6.7.1.2. Excavation from wetland.

Unless the culvert accessing the substation and O&M building site requires replacement, no excavation or fill of wetlands or waterways is anticipated.

6.6.7.2. Volume of Upland Materials (cubic yards)

6.6.7.2.1. Excavation from areas outside of waterway and wetlands.

Preliminary engineering analysis indicates that approximately 280 acres of the proposed array areas will require grading to accommodate the single axis trackers, with 220 of those acres within the primary array areas and 60 acres within the alternate array areas. The grading consists of localized cut and fill to provide a consistent slope under each tracker. A consistent slope is required to maintain adequate ground clearance at all points without requiring excessive post heights in other locations along the tracker.

Topsoil will be stripped prior to construction of the 56 miles of Project access roads. Based on the preliminary geotechnical report, topsoil averages 8 inches thick. This will result in approximately 117,000 cubic yards of topsoil to be stripped for Project access road construction. The topsoil will be thin spread near where it was removed.

Installation of the Project's estimated 55 miles of underground AC collection system at 4 feet of depth and 1 foot wide will involve approximately 43,000 cubic yards of excavation. The collection system method will likely involve trenching, cable installation and backfill all in one pass.

DC cables will connect the strings of panels. These cables may be affixed or hung in line with the racking system to the end of each row, then sent to combiner boxes where larger gauge cables will exit and run to an inverter. To create a conservative, worst-case estimate, this analysis assumes all DC cables will be trenched at a depth of 4 ft in a trench 1 ft wide. For each power block, this volume of excavation is estimated at 3,100 cubic yards. For the 300 MW Project, this DC cabling excavation sums to 300,000 cubic yards.

6.6.8. Estimated Volumes and Location of Re-used In-Channel and Upland Excavated Materials

6.6.8.1. Reuse of Dredged Materials

6.6.8.1.1. Provide the total volume of reused dredged materials in cubic yards.

6.6.8.1.2. Provide the location either on Project plans or provide off-site address, property owner, and site map drawn to scale.

6.6.8.1.3. Provide the purpose of the dredged material usage (i.e. grading, trench backfill, etc.).

No channel dredging is proposed for the Project, so sections 6.6.8.1 and accompanying subsections are not applicable.

6.6.8.2. Reuse of Upland Materials

6.6.8.2.1. Provide the total volume of reused upland materials in cubic yards.

6.6.8.2.2. Provide the location either on Project plans or provide off-site address, property owner, and site map drawn to scale.

6.6.8.2.3. Provide the purpose of the upland material usage.

All material excavated as discussed in Section 6.6.7.2 is expected to be reused on site in the vicinity of the excavation, either as fill within the array or trench backfill. Topsoil stripped from access roads and equipment pad areas will be thin spread in the Project Area.

Additional Information in Response to Commission Staff Information Request No. 01.73.

Staff Information Request No. 01.73. (Application page 76, Section 6.6.8.2.3, AFR Section 6.6.8.2.3.) Confirm that topsoil stripped from access roads and equipment pad areas would be spread in upland areas. Confirm that these areas are outside delineated wetland boundaries.

Confirmed.

6.6.9. Off-site Disposal Plans for Contaminated Materials and Non-contaminated Materials

6.6.9.1. Disposal of Dredged Materials

6.6.9.1.1. Total volume of disposed materials (cubic yards).

6.6.9.1.2. Disposal site location.

6.6.9.1.3. Type of disposal Site (i.e. confined disposal facility, landfill, etc.).

6.6.9.1.4. Disposal site name and address.

6.6.9.2. Disposal of Upland Materials

6.6.9.2.1. Total volume of disposed materials (cubic yards).

6.6.9.2.2. Disposal site location.

6.6.9.2.3. Type of disposal site (i.e. confined disposal facility, landfill, etc.).

6.6.9.2.4. Disposal site name and address.

This section addresses the requirements of Section 6.6.9 of the Application Filing Requirements, including all subsections, i.e., subsections 6.6.9.1.1 through 6.6.9.2.4.

No off-site disposal of material is expected for the Project. All non-contaminated materials are expected to be re-used within the Project Area. If suspected contaminated soils or other materials are identified they will be tested and disposed of as described in Section 6.6.4.

6.7. Dewatering Plan

Provide details for pit/trench dewatering for collectors and for dewatering excavation for structure foundations. The following checklist serves as guidance in the completion of the

Dewatering Plan necessary to meet the requirements of the Chapter 30 and NR 216 permits.

6.7.1. Dewatering/Diversion of Flow - Provide detailed plans for the dewatering/diversion of flow/standing water removal consistent with DNR Technical Standard 1061 for dewatering. Include typical dewatering/diversion measure plans with:

6.7.1.1.Specifications for the dewatering/diversion of flow/standing water removal.

6.7.1.2.Methods employed to dewater/divert flow/treat water, if applicable.

6.7.1.3.Details of how methods will be employed.

6.7.1.4.Details of where methods will be employed.

6.7.1.5.Capacities and capabilities.

6.7.2. Downstream Impact Minimization - List and describe methods of minimizing downstream impacts during high flow conditions.

6.7.3. Analysis of Possible System Overload Scenarios - Provide the following information if the stream is overloaded:

6.7.3.1.Estimated volume of system overload (i.e. what rainfall overloads the system).

6.7.3.2.Estimated frequency of system overload (i.e. how often will the system be overloaded).

6.7.3.3.Actions taken if stream is to be overloaded.

6.7.4. Impacts of System Overload on Construction Activities and Water Quality - List and describe:

6.7.4.1.Anticipated number of lost work days.

6.7.4.2.Possible water quality impacts.

6.7.4.3.Methods of deterring adverse changes in water quality.

6.7.5. Water Discharge Locations - Provide the following:

6.7.5.1.Where water will be discharged.

6.7.5.2.How water will be discharged.

6.7.5.3.A site map indicating discharge locations.

6.7.6. Details of a Back-up System - If a back-up system becomes necessary indicate:

6.7.6.1.What type of back-up system will be used (include backup and standby equipment/power supply).

6.7.6.2.Conditions when the system will be needed.

6.7.6.3.How the back-up system will operate.

6.7.6.4.Where the back-up system will be located.

6.7.7. High Flow Plan - When flooding is likely to occur, list and describe the following:

6.7.7.1.How the water will be removed from the site.

6.7.7.2.Methods of water removal (e.g. pumping).

- 6.7.7.3.Methods of minimizing water contamination (e.g. treatment methods).*
- 6.7.7.4.Protocol for evacuating materials from the flood conveyance channel including:*
 - 6.7.7.4.1.List of materials that would require evacuation during high flow periods.*
 - 6.7.7.4.2.How will the materials be evacuated from the flood conveyance channel.*
 - 6.7.7.4.3.Where will the materials be temporarily placed on-site.*
 - 6.7.7.4.4.How will the materials be transported.*
 - 6.7.7.4.5.Methods of protecting the materials.*
 - 6.7.7.4.6.Include a site map indicating the location of temporary placement.*
- 6.7.7.5.Protocol for evacuating machinery from the flood conveyance channel including*
 - 6.7.7.5.1.Type of machinery that would require evacuation during high flow periods.*
 - 6.7.7.5.2.How will the machinery be evacuated from the flood conveyance channel.*
 - 6.7.7.5.3.Where will the machinery be temporarily placed on-site.*
 - 6.7.7.5.4.Include site map indicating possible locations of temporary machinery placement.*
- 6.7.8. Contaminated Water - List and describe what measures will be taken if contaminated water is found on site including:*
 - 6.7.8.1.Methods of isolating the contaminated water.*
 - 6.7.8.2.Methods of analyzing the contaminated water.*
 - 6.7.8.3.Where the water will be tested.*
 - 6.7.8.4.Methods of removing contaminated water from site.*
 - 6.7.8.5.How the water will be treated and disposed.*

This section addresses the requirements of Section 6.7 of the Application Filing Requirements, including all subsections, i.e., subsections 6.7.1. through 6.7.8.

A dewatering plan is not anticipated for the Badger Hollow Project due to the nature of construction activity that is typical for the development of a solar facility. Typical construction activity will include minimal, relatively shallow excavations or trenching. Additionally, any excavations or trenching activity is anticipated to be short duration and backfill should occur within the same working day. Excavations and trenching activity are not anticipated to be within groundwater levels. If dewatering is required due to isolated accumulations of groundwater, surface water runoff, or rain water, the contractor will reference section 9.7 of the SWPPP (Appendix L) for Best Management Practices.

7.0 AGRICULTURAL IMPACTS

7.1. **Provide information on any ongoing farming activities on the proposed site where construction activities will occur.**

7.1.1. Identify current cropping patterns.

The proposed areas of the site where construction activities will occur are typically planted in a rotation of corn and soybeans. Some areas of pasture are used for grazing or for harvesting hay.

7.1.2. Identify the location of drainage tile or irrigation systems on the proposed sites.

Due to the prevalence of well-draining soils in the area, there is a limited quantity of drain tile within the Project Area. Only one location of drain tile is known: the Project has a transmission easement with the Thomas parcel in the SE1/4 of the SW1/4 of section 27 of Eden Township and the Thomas family stated that there is a drain tile in the grass waterway in the easement area. The Project will require an access road and one underground collection circuit in the easement area and Badger Hollow believes it can be done without impacting the drain tile, but Badger Hollow will agree to work with the landowner to repair the drain tile promptly after construction if avoidance is not possible. See Appendix M for the complete Badger Hollow Economic Impact Study.

7.1.3. Provide information on any farmland preservation agreements for the proposed sites.

All land leased for the Project qualifies under the Iowa County Farmland Preservation Ordinance which is compliant with Wisconsin Farmland Preservation law (Chapter 91). Based on conversations with Iowa County and DATCP officials, the Project would be an allowable use in the Farmland Preservation district.

7.1.4. Indicate whether any lands within the Project boundary are enrolled in the Conservation Reserve Program (CRP).

To the best of Badger Hollow's knowledge, three participating landowners have portions of property leased to the Project enrolled in CRP. The locations of CRP property are included in the package of GIS Shapefiles provided with this Application. The final Project design will avoid construction in these areas and will be in compliance with contract terms. Badger Hollow is not aware of any additional farmland preservation agreements.

8.0 AIRPORTS AND LANDING STRIPS

8.1. Public Airports

8.1.1. Identify all public airports inside the proposed Project boundary.

8.1.2. Identify all public airports within 10 miles of the Project boundary and list the distance to the nearest proposed panel from the end of the runway.

8.1.2.1. Identify separately all public airports within:

8.1.2.1.1. 10,000 feet of the nearest panel

8.1.2.1.2. 20,000 feet of the nearest panel

8.1.3. Describe any mitigation measures pertaining to public airport impacts.

This section addresses the requirements of Section 8.1 of the Application Filing Requirements, including all subsections, i.e., subsections 8.1.1. through 8.1.3.

There were no public airports identified within the proposed Project boundary.

One public airport was identified within 10 miles of the Project boundary: the Iowa County airport, which is located approximately 4.1 miles southeast from the Project boundary.

As the approximate maximum height of solar panels is 15 feet aboveground and, thus, will not interfere with airspace used by the airport, and the glare analysis further described in section 12 considered the airport and predicts no appreciable impacts to this airport, there will be no need for mitigation measures pertaining to public airports.

8.2. Private Airports/Grass Landing Strips

8.2.1. Identify all private airports/landing strips within the proposed Project boundary.

8.2.2. Identify all private airports/landing strips within two miles of the Project boundary

8.2.3. Provide the distance from each private airport/landing strip (ends of runway) to the nearest panel.

8.2.4. Describe any mitigation measures pertaining to private airport or airstrip impacts.

This section addresses the requirements of Section 8.2 of the Application Filing Requirements, including all subsections, i.e., subsections 8.2.1. through 8.2.4.

There are no private airports or landing strips located within two miles of the proposed Project boundary.

Because there are no private airports or landing strips in or within the area surrounding the Project, there will be no need for mitigation measures pertaining to private airports.

8.3. Commercial Aviation

8.3.1. Identify all commercial air services operating within the Project boundaries (i.e. aerial applications for agricultural purposes, state programs for control of forest diseases and pests (i.e. Gypsy moth control).

The Wisconsin Department of Natural Resources and the United States Department of Agriculture Forest Service use aerial chemical application methods to treat for and control the spread of gypsy moths in the adjacent counties of Grant, Lafayette, Green, and Dane. However, no areas within 10 miles of the Project Area were identified as areas where active spraying is taking place²³.

There were no agricultural aerial application services (i.e., crop-dusting services) identified within Iowa County or the area within or surrounding the Project boundary. Inquiries with local landowners have yielded that aerial applications services are not known to be used by anyone within the project area.

8.3.2. Describe any potential impact to commercial aviation operations

Based on the maximum height of the facility equipment and the absence of airports as described above, no commercial aviation operation impacts are anticipated for the Project.

This is supported by 14 CFR 91.119, which stipulates minimum safe altitudes for aircraft while flying over other than congested areas is 500 feet above the surface; or in excess of 500 feet from any person, vessel, vehicle, or structure when operating above sparsely populated areas. This rule is superseded by 14 CFR 137.49 which states, “during the actual dispensing operation, including approaches, departures, and turnarounds reasonably necessary for the operation, an aircraft may be operated over other than congested areas below 500 feet above the surface and closer than 500 feet to persons, vessels, vehicles, and structures, if the operations are conducted without creating a hazard to persons or property on the surface.

8.3.3. Describe any mitigation measures pertaining to commercial aviation

As there are no aerial services provided in or within the region surrounding the Project Area, there is no need for mitigation measures pertaining to commercial aviation.

8.4. Emergency Medical Services - Air Ambulance Service

8.4.1. Identify the provider/s of air ambulance services within the Project Area

The closest air ambulance services provider to the Project Area is the Memorial Hospital Heliport in Dodgeville, Wisconsin located approximately nine miles west of the Project boundary.

²³ Wisconsin Department of Agriculture. 2018. Wisconsin gypsy moth slow the spread (STS) treatment sites in western Wisconsin.
<https://datcpgis.wi.gov/maps/?viewer=gm> Accessed April 2018.

8.4.2. *Describe any planned mitigation (e.g. establishment of safe landing zones, etc).*
The Project is not expected to affect the response capabilities of any emergency medical services including air ambulance services, so no mitigation is planned.

8.5. Federal Aviation Administration – FAA

- 8.5.1. *Provide copies of all correspondence with the FAA.*
- 8.5.2. *Provide copies of all FAA determinations of hazard/no hazard.*
- 8.5.3. *Provide a summary of the status of all FAA determinations with details on how any unresolved problems with aircraft safety are being addressed.*
- 8.5.4. *Provide a detailed description of any obstruction marking and lighting that will be required by the FAA.*

The requirements of subsections 8.5.1-8.5.4 of the Application Filing Requirements do not apply because the Project will not contain structures that are subject to FAA hazard determination.

8.6. Wisconsin Department of Transportation – Bureau of Aeronautics – High Structure Permits

- 8.6.1. *Provide a list of all sites requiring DOT high structure permits.*

Based on Wisconsin Code 114.135(7), the necessity of a permit for the erection of high structures is limited to objects that extend to a height greater than 500 feet aboveground within one mile of the location of the object, or above a height determined by the ratio of one vertical foot to 40 horizontal feet measured from the boundary of the nearest public airport or spaceport within the state. As there will be no structures constructed above 500 feet in height or within one mile of an airport or spaceport for the Project, there is no need for a permit for the erection of high structures.

- 8.6.2. *List the permit status and conditions for each site requiring high structure permits.*

There are no high structure permits required for Project development.

9.0 EMF

9.1. Provide an estimate of the magnetic profile created by collector circuits. Estimates should be made using the following criteria:

- 9.1.1. *Show a separate profile for the typical buried collector circuits. If some trenches would support more than one buried circuit, provide a separate estimate for each bundled configuration.*
- 9.1.2. *Show a separate profile for any overhead collector circuits.*
- 9.1.3. *Assume all panelsturbines are working and project is producing at maximum capacity.*
- 9.1.4. *Show EMF profile at 0ft., 25ft., 50ft. and 100ft. from the centerline of each circuit type modeled.*

Magnetic fields, measured in milliGauss (mG), are generated when electricity flows on a conductor such as a underground collector circuit in this case. It shall be noted that in the United States the power frequency is 60 hertz (cycles per second). The intensity of the

magnetic field is dependent on the voltage and load on the line and rapidly decreases with the distance from the conductors. The magnetic field generated from the conductors of an electrical circuit extends from the energized conductors to other nearby objects. The load on a circuit varies throughout the day and therefore the magnetic field level will also vary from hour to hour. For the purposes of this study, maximum loading was assumed for the unique line segments associated with this Project. Considerable research has been conducted to determine whether exposure to 60 Hz magnetic fields cause negative health effects. These studies have shown no statistically significant association. The PSC has also concluded that there is no correlation between magnetic fields and negative health effects²⁴. The detailed Electric and Magnetic Field (EMF) Report is Appendix N.

In response to the requirements of AFR sections 9.1.1, 9.1.3, and 9.1.4, Section 5 of the EMF Report (Appendix N) details the magnetic field profiles for each unique circuit configuration at both the generation plant's full and 80 percent capacity. A separate profile was added for the scenario where the Project's transmission line runs parallel to underground circuits. The EMF profile is shown at a minimum of 0 ft, 25 ft, 50 ft, and 100 ft from center of each profile as outlined in the report. No overhead collector circuits are proposed, so AFR section 9.1.2 does not apply to the Project.

10.0 LINE-OF-SIGHT AND BROADCAST COMMUNICATIONS

10.1. Microwave Communications

10.1.1. Provide a line of site analysis showing that panels, installed at the proposed site, will not interfere with microwave communications.

10.1.2. List potential impacts, mitigation measures used in design and post construction mitigation measures and plans.

Comsearch identified three microwave paths intersecting the Project Area. The 1ST and 2nd Fresnel zones for these microwave paths were calculated and mapped. All of the proposed solar array structures within the defined project area were found to have sufficient horizontal and/or vertical clearance and therefore avoid the risk of obstructing or causing harmful interference to the microwave paths in and around the project area. Full details are in Appendix O.

²⁴ Public Service Commission of Wisconsin, EMF – Electric and Magnetic Fields, The Electromagnetic Spectrum, <https://psc.wi.gov/Documents/Brochures/EMF.pdf>, accessed May 9, 2018.

10.2. Radio and Television interference

10.2.1. Provide an analysis of the potential for television interference within and adjacent to (within 1 mile) of the Project boundary.

10.2.2. Discuss how television interference will be eliminated or mitigated for the Project.

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the Project. No recommendation for mitigation is necessary for Badger Hollow, as the location of the solar arrays meets or exceeds the required distance separation from all licensed AM and FM broadcast stations near the Project area. Full details are in Appendix O.

Comsearch performed an Over-the-Air (OTA) TV Analysis and concluded that television reception interference was unlikely. Specifically, the inverters of a power conversion station should be installed away from residential areas to reduce the likelihood of EMI to households that may rely on OTA television service. At minimum, a setback distance of 500 feet from any household is recommended. In the unlikely event that EMI is observed at a certain household following the construction of the solar farm, a high-gain directional antenna may be employed, preferably outdoors, and oriented towards the signal origin to mitigate the potential impact on OTA TV signal reception.

Both cable service and direct broadcast satellite service will be unaffected by the presence of the solar farm and may be offered to those residents who can show that their OTA TV reception has been disrupted by the presence of the solar farm after it is installed. Full details are in Appendix O.

10.3. NEXRAD interference:

10.3.1. Describe whether the proposed development is likely to interfere with any of the following Doppler weather radar installations:

10.3.1.1. National Weather Service WSR-88D NEXRAD Doppler radar network installations within 150 miles (250 km) of the Project boundary.

10.3.1.2. Doppler radar installations operated by broadcast television stations with Federal Communications Commission authorized service areas that completely or partially include the Project Area.

Doppler radar works through the interpretation of data received from radar signals that have returned to the sending station after being reflected by an object in the path of the beam. Some of the things that can interfere with this beam to create a false positive interpretation include dense bird populations, adverse atmospheric conditions, and smoke plumes. Tall structures such as trees or buildings within the sight line of the sending position are also described as a growing problem by the National Oceanic and Atmospheric Administration. The development of a solar farm would have a maximum topographic impact of fifteen feet. Because the radar towers are elevated to avoid interference from topography (minimum height of the NEXRAD towers is 10 meters in

height²⁵), Badger Hollow believes there would be no impact from the development of a solar facility.

10.4. Other Communications Systems:

10.4.1. Provide an analysis or supportive data to predict whether or not any aspect of the proposed Project will interfere with:

10.4.1.1. Cell phone communications

10.4.1.2. Radio broadcasts

10.4.1.3. Internet (WiFi)

10.4.1.4. Describe mitigation measures should interference occur during Project operation

An assessment of the emergency services in the Project area was performed by Comsearch to identify potential impact from the proposed solar farm. Comsearch evaluated the registered frequencies for the following types of first responder entities: police, fire, emergency medical services, emergency management, hospitals, public works, transportation and other state, county, and municipal agencies. Comsearch also identified all industrial and business land mobile radio systems and commercial E911 operators in proximity of the solar farm project. No recommendation with regard to coverage impact mitigation is necessary, as the proposed Project is not expected to cause any significant degradation in signal strength after construction. Full details are in Appendix O.

Comsearch has developed and maintains comprehensive technical databases containing information on licensed mobile phone carriers across the US. Mobile phone carriers operate in multiple frequency bands and are often referred to as Advanced Wireless Service, Personal Communication Service, 700 MHz Band, Wireless Communications Service, and Cellular. They hold licenses on an area-wide basis which are typically comprised of several counties. For the cellular towers located within the project area, no setback distance is required from an interference standpoint due to the higher frequencies in which they operate within the UHF band. Electromagnetic interference (EMI) from a solar farm is caused by an induction field, which is created by the AC electrical power and harmonics at the inverter of the Power Conversion Stations located throughout the facility. The propagation of the interference occurs over very short distances which are generally around 500 feet or less, and due to the low frequency (60 Hz) operation of the PV inverter, EMI from solar farms does not normally extend above 1 MHz. Full details are in Appendix O.

²⁵ Radar Operations Center. March 2016. WSR-88D Interference.

https://www.roc.noaa.gov/WSR88D/PublicDocs/Operations/Interference_Presentation_notes.pdf

11.0 NOISE

Pre and Post construction noise studies are required for this Project using the Noise Protocol for Conventional Power Plants. Noise measurement studies must be approved by PSC staff.

11.1. Provide existing (ambient) noise measurements and projected noise impacts from the Project using the PSC's Noise Measurement Protocol.

A pre-construction noise analysis was conducted for the Project by Hankard Environmental. The analysis consisted of determining the location of all noise-sensitive receptors located near the Project, measuring existing noise levels within the Project study area, and predicting both construction and operational noise levels at noise-sensitive receptors. The analysis was carried out in accordance with the Wisconsin PSC's Measurement Protocol for Sound and Vibration Assessment of Proposed and Existing Electrical Power Plants. Additionally, while not required, noise levels from the operation of the Project were compared to the Wisconsin PSC's 45 dBA standard for wind turbine power plants. For more detailed information, refer to the Pre-Construction Noise Analysis for the Proposed Badger Hollow Solar Farm, Appendix P.

Noise-producing elements of the operation of the Project include inverters, tracking motors, and transformers. The project layout studied for this analysis consists of 125 inverters and approximately 3,150 tracking motors, which are located throughout the Project. These components provide for an up to 375-megawatt (MW) project, though Badger Hollow is only requesting approval for 300 MW. Wisconsin siting rules require the inclusion of alternate sites, so the project layout version studied for this analysis conservatively used all 375 MW, including 25% surplus inverters and tracking motors, though only 300 MW would be built, at most. The two transformers are located at the Project's substation near the middle of the Project. Noise-producing equipment to be employed during construction includes typical bulldozers, graders, excavators, trucks, vibratory post setters, and cranes.

Noise-sensitive receptors in the area include mainly single-family residences, as well as one school. One hundred and six residences were specifically identified for this analysis, as well as the school located at the intersection of Iowa-Grant Road and County XX. The closest residences have proposed solar panels within approximately 200 to 300 feet. Most residences are located 1,000's of feet from any of the Project's noise-producing components.

An ambient noise survey was conducted in the Project area between April 30 and May 4, 2018. Noise levels were measured at six locations that were selected following consultation with Wisconsin PSC staff. Hand-held measurements were collected during four different time periods on two different days, for a total 48 (6 locations x 4 time periods x 2 days) individual measurements. In addition, noise monitors were left at two locations to continually measure ambient noise levels over the course of four days and nights. Sources of existing noise in the area were primarily natural sounds such as birds, frogs, and wind. Other sources including ventilation fans and other noise from farms, tractors working in the fields, distant traffic (Highway 18, State Highway 80 and County Roads), and local traffic (very sparse). The existing wind turbines to the north were

barely, if at all, audible. Measured daytime noise levels range from approximately 30 to 50 dBA. Measured nighttime noise levels range from approximately 30 to 40 dBA. The noise levels measured by the long-term monitors are consistent with these ranges, but also captured slightly higher noise levels during the day (up to 68 dBA) and lower noise levels at night (down to 20 dBA).

Noise levels from the full operation of the Project were predicted at each noise sensitive receptor. Noise levels were predicted using the methods specified by International Standards Organization (ISO) 9613-2, *Attenuation of Sound During Propagation Outdoors - Part 2: General method of calculation*. Noise emission levels for the inverters, tracking motors, and transformer were determined from manufacturers' data, and from other published measurement results and reports. The ISO method was implemented using the SoundPlan software program. A ground factor of 0.5 was assumed, which is representative of farmland. Operational noise levels range from less than 20 dBA at more distant receptors, to a high of 40 dBA at the closest non-participating receptor. All of the levels are significantly less than the WiPSC 45 dBA standard for wind turbines. Also, this level will only be reached during the daytime on sunny days. Under cloudy conditions noise levels will be at least 3 dBA lower, and no detectable noise will be emitted by the Project at night.

Finally, noise from the operation of the Project will be inaudible much of the time due to higher levels of ambient noise, particularly on windy days. Existing daytime noise levels range from 35 to 55 dBA and will mask noise from the Project completely at all of the more distant receptors. At the closest receptors, those with predicted levels from the Project of 35 dBA or more, the project may be just audible when it is sunny and not windy. The Project will not be audible at any receptors when it is windy.

Noise levels from the construction of the Project were predicted using the Federal Highway Administration's Roadway Construction Noise Model (v 1.1). Noise levels were predicted for four phases of construction: site preparation, civil work (grading, etc.), mechanical assembly, and electrical assembly. Noise from construction will vary greatly at any one receptor and will depend on the type of equipment used and how far away it is being operated. A typical bulldozer has a noise level of 70 dBA at a distance of 250 feet (the closest equipment will get to residences). When working near a residence, noise levels could get this high. If two equally-loud bulldozers were present, noise levels would increase to 73 dBA. As equipment moves further from a residence, noise levels will decrease. For example, when a single bulldozer moves from 250 feet to 1,000 feet, the noise level drops below 60 dBA.

The analysis demonstrates that noise levels at the nearest residences to the Project will reach a high of 60 to 70 dBA during the site clearing and grading phases when equipment is operating directly adjacent to a given residence. Noise levels will be similar during the mechanical installation phase of construction when vibratory pile driving is taking place nearby but will otherwise be lower (50 to 60 dBA). Noise will be minimal during the electrical finishing stage. It is important to understand that the above-described levels will only occur on those days when construction activities are taking place adjacent to a

residence. Noise levels will decrease when construction is more distant, during times when noise-producing equipment is at idle, and during times when no construction is taking place near the residence or at the site at all.

Additional Information in Response to Commission Staff Information Request No. 01.74.

Staff Information Request No. 01.74. (Application page 87, Section 11.1 and Appendix O, AFR Section 11.1.) The report prepared by Hankard Environmental reports that a ground absorption coefficient of 0.5 was assumed in conjunction with the measured values, which together were used to estimate expected noise levels at sensitive receptor sites. Perform the calculations with a ground absorption coefficients of both 0.0 and 0.5, and describe any differences in results or conclusions.

The calculations requested are included in the revised Hankard Environmental Report attached at Appendix P.

Additional Information in Response to Commission Staff Information Request No. 01.75.

Staff Information Request No. 01.75. (Application page 87, Section 11.1 and Appendix O, AFR Section 11.1.) The PSC sound and vibration measurement protocol strongly encourages data to be gathered in the 16 Hz frequency band for measurements and sound level estimations, including for proposed site equipment. Table 5-2 does not include data for the 16 Hz bands for the inverters, transformers, or motors. Justify why this frequency band was excluded from the analysis and explain what the expected difference inclusion would make, if any.

Manufacturers of the relatively small solar inverters and motors do not provide this information because these sources do not produce any appreciable noise in the 16 Hz octave band. Large sources such as a heat-recovery steam generator at a fossil fuel plant and wind turbines produce some levels of noise at 16 Hz. While transformers peak in the 125 Hz range and include at least some noise at 16 Hz, manufacturers generally do not provide this information. Including 16 Hz would make absolutely no difference in the predicted levels or assessment of impact.

Additional Information in Response to Commission Staff Information Request No. 01.76.

Staff Information Request No. 01.76. (Application page 87, Section 11.1 and Appendix O, AFR Section 11.1.) The PSC measurement protocol requires a contour map be produced showing 5 dBA increments for a minimum of 1,000 feet from a new energy production facility. Figure 7.2, which has two contours of 35 and 40 dBA around proposed primary solar array sites and does not appear to go beyond 1,000 feet from the boundaries of those array sites, does not meet this requirement. Provide the required map.

The information requested is included in the revised Hankard Environmental Report, attached at Appendix P.

11.2. Provide copies of any local noise ordinance

Iowa County's zoning ordinance contains 50 dBA daytime and 45 dBA nighttime limits for wind turbines, in accordance with PSC 128.105(1). Noise emissions from the Project will meet this standard.

Additional Information in Response to Commission Staff Information Request No. 01.77.

Staff Information Request No. 01.77. (Application page 88, Section 11.2, AFR Section 11.2.) The filing requirements state that copies of the local noise ordinance(s) must be supplied. This information does not appear to be in the main application or Appendix O materials, despite a textual description of the Iowa County noise ordinance. Identify where a copy of the ordinance is located in the application materials, or provide a copy as required.

A copy of the Iowa County Noise Ordinance is attached at Appendix HH. However, this ordinance refers to the operation of motor vehicles only. The Iowa County Wind Energy Siting Ordinance is also attached at Appendix HH.

11.3. Provide transformer, substations, single-axis mounting bracket motors manufacturer's description of noise attenuating methods and materials used in the construction of proposed turbines.

See section 11.1 and Appendix P for detailed information responsive to this section.

11.4. Describe how noise complaints will be handled.

Badger Hollow will meet with any local resident submitting a noise complaint to fully understand the complaint. Observations of excess noise can sometimes indicate the need to repair or maintain equipment, and Badger Hollow will determine if the noise is the result of a mechanical issue that can be repaired. If not, Badger Hollow will attempt to negotiate a mutually-agreeable solution.

11.5. Discuss any mitigation measures that would be used to address noise complaints during the operation of the Project.

With a predicted maximum noise level of 40 dBA during daytime, Badger Hollow believes it unlikely that the Project will elicit noise complaints that require mitigation.

12.0 GLARE

12.1. Provide an analysis showing the potential for glare in the area of a typical solar site. (The analysis should list the basic assumptions used and the methodology/software used for creating the shadow flicker analysis.)

A glare analysis for the Project is included Appendix Q. The ForgeSolar PV planning

and glare analysis software, GlareGauge²⁶, was used to characterize the potential of glare from PV panels as viewed by a receptor (i.e., observer). For glare to reach a receptor, the observer must be able to see the top of a PV module, the panels must be angled such that they reflect the sunlight towards the observer, and the view of the panels must be clear of obstruction. Solar PV modules are designed to absorb light to produce energy. They are also manufactured with a non-reflective film.

Initial modelling in GlareGauge used the following assumptions: glare analyses did not account for physical obstructions between reflectors and receptors (e.g., buildings, topography or vegetation) and the glare hazard determination relied on approximations of observer eye characteristics, view angle, and blink response time. A model of the topography and solar array was developed in ArcGIS to determine line of sight between the Key Observation Points (KOPs) and the PV panels to eliminate areas that would be blocked from view by the terrain.

28 KOPs were established within the Project boundary for glint and glare modelling (See Figure 13 and table 1 in Appendix Q). The KOPs were selected to be spatially representative of the Project Area.

The model classifies the impact of glare for an observer into three color-coded levels: low potential for producing an after-image (green), potential for producing an after-image (yellow), and potential for permanent eye damage (red). The model did not identify any potential for permanent eye damage instances but did identify some potential for temporary after-images at 23 of the 38KOP locations (Table 5 in Appendix Q). The five remaining KOPs are not expected to experience glint or glare effects.

Additional Information in Response to Commission Staff Information Request No. 01.78.

Staff Information Request No. 01.78. (Application page 88, Section 12.1 and Appendix Q, AFR Section 12.1.) Ground elevation and eye level height above ground were identified for various key observation points, mostly farmhouse and residential structures. Clarify what assumptions were made pertaining to the possibility of multi-level structures, with human occupants who may be elevated higher than the assumed ground elevation. If such analysis was not performed, identify how conclusions may change if multi-level dwellings occur at the key observation points.

The observer height for all of the residences modeled was run at 6' above ground level as a best representation of people either being outdoors or in a room with a viewing window at times of day with low sun angle (sunrise or sunset). Second floor windows are often bedrooms or bathrooms, which commonly have curtains drawn at such times of day. This decision is supported by Westwood's experience conducting numerous glare analysis for other PV solar projects where glare from the second story was analyzed.

²⁶ Sims Industries. 2017. ForgeSolar - GlareGauge software. Centerville, OH.

These analyses indicated that there is not a significant difference in the glare results between a single story and two story residence, so it was omitted here.

12.2. Describe mitigation available to reduce glare.

As the PV panels will be mounted to single-axis tracking systems, the surface of the PVs will be in-line with the position of the sun; thereby, reducing the potential for steep, glancing angles (i.e., chance for glare) compared to fixed-axis systems. If glint or glare prove to be problematic for an observer, Badger Hollow may use fencing, vegetation, or other objects of obstructive nature to mitigate glint or glare effects.

12.3. In the event of an inquiry or complaint by a resident in or near the Project Area, describe what modeling or other analysis would be used to evaluate the possibility of glare at the residence. If the likelihood were high that the resident would experience glare, describe what measures would be used to reduce the impacts on the resident.

In the event of a complaint about glare by a resident within or outside of the Project boundary, GlareGauge modelling will likely be used to assess the extent and time of day of glare at the point of concern. As described in 12.2 above, there are several options for minimizing the impacts on the resident, including fencing and vegetation.

13.0 LOCAL GOVERNMENT IMPACTS

13.1. Joint Development and Other Agreements

13.1.1. Provide a summary of major agreement items agreed upon in any JDA or other type of agreement including:

13.1.1.1. All services to be provided by the city, town, and/or county during construction and when the plant is in operation (e.g. water, fire, EMS, police, security measures, and traffic control).

13.1.1.2. Specifically, address community and facility readiness for incidents such as fires and critical turbine structure failures.

13.1.2. Provide a copy of all agreements with local communities (e.g. Joint Development Agreements (JDA))

This section addresses the requirements of Section 13.1 of the Application Filing Requirements, including all subsections, i.e., 13.1.1. and 13.1.2.

Badger Hollow has not yet completed negotiations with local governments on a possible Joint Development Agreement (JDA), and anticipates that a JDA will include agreement on subjects such as:

- Materials delivery haul routes
- Driveway permits
- Road maintenance and repair
- Stormwater management
- Reimbursement of town or county costs
- Replacement of lost tax receipts for K – 12 school district, Technical College ambulance service or fire departments which do not receive Utility Aid Shared Revenue funds.
- State Utility Aid Shared Revenue payments to hold harmless for county and municipal governments
- Decommissioning
- Construction period public safety and EMS service
- Site lighting
- Insurance issues
- Dispute resolution process

The Project is seeking a Conditional Use Permit from Iowa County. An application is expected to be submitted to the Planning and Zoning Commission in June or July 2018.

The Project does not expect to require unusual local public services. Construction material delivery is generally not oversized or overweight, thus few traffic control issues should be encountered. The JDA agreement on construction haul routes may determine the need for traffic control assistance from the Iowa County Sheriff. The construction contractor will arrange for the purchase of local water needed during construction for dust control. Normal local fire and EMS service will be relied upon during construction and during facility operation. Cooperation and training meetings with local emergency providers will be organized and held. During operation, the facility will obtain potable water from an onsite well and sanitation disposal under County permitting at the Operations and Maintenance Building site.

Photovoltaic generating panels and related facilities do not present unique or unusual fire or other safety hazards. Site facilities do not include difficult elevation or facility access situations. Fire and EMS provider cooperation and periodic meetings will be held to maintain familiarity with site facilities. If Badger Hollow adds a BESS, fire and EMS personnel will be trained on any special needs it presents.

13.2. Infrastructure and Service Improvements

13.2.1. Identify any local government infrastructure and facility improvements required (e.g. sewer, water lines, railroad, police, and fire).

13.2.2. Describe the effects of the proposed Project on city, village, town and/or county budgets for these items.

13.2.3. For each site provide an estimate of any revenue to the local community (i.e. city, village, town, county) resulting from the Project in terms of taxes, shared revenue, or payments in lieu of taxes.

13.2.4. Describe any other benefits to the community (e.g. employment, reduced production costs, goodwill gestures).

No additional infrastructure or facility improvements are expected to be required for the construction and operation of the Project. The impact to budgets of local governments will be positive due to increased revenue from the Shared Revenue payment and ancillary impacts such as increase in local jobs, landowner payments, and increased spending locally during the construction period.

Local revenue and other benefits to the community from the Project are presented at length in the Economic Impact Report (Appendix M).

Additional Information in Response to Commission Staff Information Request No. 01.79.

Staff Information Request No. 01.79. (Application page 91, Section 13.2 and Appendix M (Section V, Table 5), AFR Section 13.2.3.) Provide an estimate of shared revenue that would be distributed to each town as a result of the project. Explain the basis for the "incentive payment."

This will be determined by operating capacity in each township, and until a final layout is complete this is difficult to estimate.

Using percentage of leased land in each township and village as a proxy, each would receive the following approximate amounts:

- Mifflin: \$298,000
- Eden: \$181,000
- Linden: \$20,000
- Cobb: \$2,000

Under the Shared Revenue Utility Aid program, the project would qualify for the capacity based payment to be split between the county and municipalities. A plant that qualifies for the capacity based payment is eligible for the incentive payment, which includes any plant that derives its energy from an "alternative energy source."

14.0 LANDOWNERS AFFECTED AND PUBLIC OUTREACH

Additional Information in Response to Commission Staff Information Request No. 01.80.

Staff Information Request No. 01.80. (Application page 91, Section 14.0, AFR Section 14.0.) Provide copies of any written comments received from landowners and the public concerning the project.

Two letters to editor of the Dodgeville Chronicle dated 6/7/2018 and 6/22/2018 are attached at Appendix II.

14.1. Provide a separate alphabetized list (names and addresses) in Microsoft excel for each of the groups described below:

14.1.1. Property owners and residents within the Project boundary and a separate list of property owners and residents from the Project boundary out to a distance of 1.0 mile. It is strongly recommended that applicants consult with PSC staff in order to ensure that the format and coverage are appropriate considering the project type, surrounding land use, etc.

14.1.2. Public property, such as schools or other government land.

14.1.3. Clerks of cities, villages, townships, counties, and Regional Planning Commissions (RPC) directly affected.

See Appendix R (provided via disk) for the alphabetized list (names and addresses) in Microsoft excel for each of the groups listed in section 4.1 above.

Additional Information in Response to Commission Staff Information Request No. 01.81.

Staff Information Request No. 01.81. (Application page 91, Section 14.1, AFR introductory instructions, page iv.) Provide an updated mailing list using the exact format as shown below for row one. Remove any duplicate addresses from the list.

An updated mailing list in the exact format as in the original CPCN Application is attached at Appendix R.

14.2. List and describe all attempts made to communicate with and provide information to the public. Describe efforts to date and any planned public information activities. Provide copies of public outreach mailings.

- Landowners – Project representatives have been meeting with area landowners to discuss leasing since March 2017. A landowner cookout was held on May 3, 2018 with participating and non-participating landowners invited. Badger Hollow has a part-time (20 hour/week) local representative who has held multiple one-on-one meetings with participating and non-participating landowners and maintains office

hours at a local farmhouse/office at 2625 County Road J, Montfort, on Tuesdays from 8:15 to 11:15 AM and Wednesdays from 1:30 to 4:30 PM.

- Regulatory Agencies – Beginning in July 2017, meetings and discussions concerning the Project and possible permitting issues were held with staff from the Public Service Commission of Wisconsin, Department of Agriculture Trade and Consumer Protection (DATCP) and WDNR to discuss potential issues and discuss site vegetation management.
- Local Governmental Units – Beginning in July 2017, meetings to describe the possible solar project were held with state elected representatives for the site area:
 - Iowa County representatives (County Administration, County Supervisors, Board, Planning Director, Iowa County Highway Commissioner),
 - the Mayor of Dodgeville,
 - Mifflin, Linden and Eden township board members and chairmen,
 - Montfort Village President and trustees,
 - Cobb Village President and trustees,
 - and the Iowa County Conservationist.
- General Public – Meetings were held with the Board of the Iowa County Farm Bureau Federation, Dodgeville Chamber of Commerce, Wisconsin Farm Bureau Federation, UW Platteville School of Agriculture, Iowa Grant School Superintendent, Driftless Area Land Conservancy, UW Arboretum. The Dodgeville Chronicle printed a story describing the Project. Badger Hollow has a local office and dedicated local representative in the Project Area with set office hours for the public to stop in and ask questions and gather Project information.

Dates of meetings described above are included in Appendix S.

Additional Information in Response to Commission Staff Information Request No. 01.82.

Staff Information Request No. 01.82. (Application page 92, Section 14.2, AFR Section 14.2.) Provide a sample contract for the easements and any "good-neighbor" payments. Describe the nature of "good neighbor" agreements sought from non-participating landowners. If good-neighbor payments are being offered, provide details regarding the conditions attached to the payments.

A sample Participation Easement Agreement is attached at Appendix JJ.

The intent of the Participation Easement Agreement is to compensate non-participating landowners adjacent to facilities for real and/or perceived impacts from living near those facilities.

The landowner receives an upfront payment upon signing, and payments annually. In exchange, the project receives an easement on Owner's Property for electromagnetic, audio, visual, view, light, noise, vibration, electrical, radio interference or other effects

attributable to the solar facilities or the construction, maintenance, repair, operation or removal of the facilities.

Under the agreement, Badger Hollow would not have rights to cross or construct on the landowner's property.

14.3. Describe plans and schedules for maintaining communication with the public (e.g. public advisory board, open houses, suggestion boxes, and newsletters).

- Online: Badger Hollow has established a Facebook page and maintains this social media presence for Project information sharing and management of inquiries (via Facebook Messenger and comments). Badger Hollow also has a website (www.badgerhollowsolar.com) with Project-specific information available for public review and search; content and fact sheets will be updated over the lifespan of the Project to further communicate Project status.
- Print: Print advertisements and inserts featuring Project facts, information, and where to go to learn more, etc. were placed in the Dodgeville Chronicle (semi-monthly), Platteville Journal (semi-monthly) and Ad-visor (a local shopper, semi-monthly).
- Physical Presence: A local representative for Badger Hollow staffs an office in the immediate Project Area, working 20-hours per week with set open office hours. The local office is conveniently located within the Project Area; thereby, allowing locals access to Project information and updates.
- Meetings: Badger Hollow intends to set up a booth at the 'A Day on the Farm' event in Platteville on June 16, 2018, host a public open house on June 19, 2018, present at the Iowa County public hearing associated with the CUP request in June or July, 2018), set up a booth at the Iowa County fair (August 30-September 3, 2018), attend local service club meetings (Lions, Lioness, Kiwanis, Federated Woman's Club), and attend township/village/city/county meetings at a regular interval (monthly to quarterly).

14.4. Identify all local media that have been informed about the Project. The list of local media should include at least one print and one broadcast.

Local media outlets that were informed about the Badger Hollow Solar Farm Project include the Platteville Journal, Ad-visor (shopper), the Dodgeville Chronicle, and News 3 out of Madison, Wisconsin.